

THE IMPACT OF EXTERNALLY SET GOALS ON MOTIVATION AND PERFORMANCE
IN THE SALES FORCE

By

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Dedicated to my parents, Kunkum and Bhabatosh Sen Chowdhury, who have
been my first educators and much, much more . . .

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An important characteristic of the sales management context is the widespread use of and importance attached to sales quotas. The levels of sales quotas assigned to salespeople are believed to affect their work motivation and actual performance levels. Sales managers, however, have little or no recourse to theory-based guidelines that may help them in choosing an optimum sales quota in a given situation.

In the course of addressing issues related to the setting of optimal levels of performance targets or goals, this dissertation adopts an eclectic perspective and introduces multiple viewpoints in researching phenomena related to motivation in the sales force. Additionally, it proposes an integrating conceptual framework that is used to resolve the seemingly contradictory positions of different research traditions in related disciplines. The conceptual model proposed in the dissertation describes the effects of goal setting in terms of intervening

cognitive and motivational constructs and identifies the relevant inter-relationships in order to account for the phenomena associated with goal setting.

In order to validate some of the key propositions that are generated from the conceptual model, an experimental study was conducted. The task situation chosen for the study included negotiation sessions in which the experimental subjects assumed the role of salespeople and participated in bargaining activities with a microcomputer that assumed the roles of purchase representatives. A computer program was specifically written for this purpose. The dissertation describes in detail the methods used for the experimental study and the results of the data analyses.

The results indicate that for every individual, performance in sales related tasks improves when the level of difficulty of the goal is increased till a certain point. Thereafter, further increases in the level of goal difficulty do not improve performance. The results also indicate that for low levels of goal difficulty, most individuals perform equally. However, when the goals are made increasingly difficult, individuals with higher levels of self-efficacy outperform those who are low in self-efficacy.

CHAPTER 1

INTRODUCTION

Overview

Within the context of sales management, the practice of setting of sales quotas, in one form or another, has been and continues to be pervasive. The use of quotas in sales situations is estimated to have been used as early as 1888 (Phelps and Westing 1968, p. 739). In a survey conducted well over half a century ago, Griffin (1928) found that a majority of the larger manufacturers in the US used some kind of sales quota plan.

With the introduction of the concept of Management by Objectives (Drucker 1954; McGregor 1954), interest in the setting of goals or quotas was extended beyond the sales force to become a major aspect of the organizations' overall development.¹ According to Futrell, the concept of Management by Objectives (or MBO) has received "considerable attention in management literature and has been characterized as the most pervasive idea in management in the last quarter century" (1981, p. 134). However, Futrell (1981) also points out that the idea of MBO

¹Odiorne (1978) provides a review of literature devoted to issues concerning Management by Objectives.

has been interpreted in ways that are markedly different from each other and different components of the overall MBO concept have been emphasized by the different advocates of the idea. Consequently, in spite of the inspiration it has provided and the enthusiasm generated, the concept remains amorphous with regard to its capability to generate concrete researchable propositions. Steers and Porter (1974) indicate that books written on goal setting or quota setting within the purview of MBO are numerous, but they typically possess the distinct characteristic of "how-to-do-it" manuals that are based on anecdotal wisdom and lack formalized theory testing procedures.

Modern textbooks on sales and marketing management almost unanimously emphasize the significance of quotas in sales situations. Sales quotas are used for several purposes, among which the most important include forecasting, establishing standards of evaluation, and motivating salespeople (Anderson, Hair & Bush 1988; Johnson 1976; Stanton & Buskirk 1978). A section on sales quotas in a recent sales management text (Anderson et al. 1988) reveals that there exists considerable appreciation for the possibility that sales quotas may have strong impacts on motivation and performance of salespeople. Anderson et al. suggest that

professional salespeople . . . have special incentives for top performance. These sales incentives or motivational targets are called quotas and they may take a variety of forms. Successful sales managers who skillfully make use of sales force quotas can stimulate their salespeople to achieve exceptional individual and team performances. [1988, p. 354]

However, despite the common use of quotas, there exists very limited research in the marketing literature that is directed toward investigating the effects that quotas have on performance.

The Goal Setting Phenomenon

The problems that may be associated with the motivational properties of goal setting may be appreciated at an intuitive level. For, instance, we may conceive of a sales quota that has been set so high that it acts as a source of discouragement to the individual. Under such conditions, the quota may actually decrease the level at which the salesperson performs. On the other hand, if a quota is set too low, then the salesperson's employer could be utilizing only a part of the individual's potential, and once again extracting less than optimal performance from the salesperson. This scenario is an illustration of how changes in the levels of an externally set goal could affect performance.

In addition to the effect of the level of goals on performance, the manner in which goals are scheduled also affect task motivation and performance, especially when goals are repeatedly assigned within a period of time. For instance, research suggests that the frequency with which goals are scheduled affect task motivation and performance (Bandura & Schunk 1981). Even when the goal levels are same across two or more goal conditions, different frequencies of goal setting may account for differences in performance levels.

An useful taxonomic scheme which may be employed in the context of goal setting studies involves categorizing the issues into the static and the dynamic aspects of the phenomenon. The static representation of the phenomenon concerns issues that deal with the mechanisms involving cognitive processes and subsequent motivational properties of quotas or performance targets at a given point in time (or, at most, over brief periods). It addresses issues that concern the effect of the level of externally set goals on motivation and performance in terms of intervening cognitive variables, without explicit consideration of any effects of repetition and feedback.

The dynamic aspect of goal setting, on the other hand, concerns the issue of how performance goals interact with other factors over extended periods of time in its influence on motivation and performance. This aspect of goal setting considers how quota levels, performance, and feedback at a given point in time affect subsequent performance with respect to quotas. From a management perspective, questions related to the dynamic aspects of goal setting are at least of equal importance to the questions surrounding its static aspects. In a sales management context, quotas are important recurring features of business periods. Insight into the dynamics of the effect of quotas is, in the very least, relevant and perhaps even crucial from the standpoint of understanding and analyzing salesforce motivation.

Objectives

Although relatively unknown to literature on salesperson performance in marketing, goal setting within a broader organizational context has been a subject of extensive research in organizational behavior. Included among those studies are the few that address the effect of goal setting in sales situations (as, for example, Hollenbeck & Williams 1987; Huber & Neale 1987).

Studies that have explored the effects of goal setting have taken into consideration a wide variety of situations and subjects. For instance, goal setting studies have inquired into the performance of scientists and engineers (Andrews & Farris 1972), productivity of factory workers (Dachler & Mobley 1973), performance of chess players (Campbell & Ilgen 1976), behavior of households with regard to residential energy conservation (Becker 1978), class performance of second through fourth grade elementary school students (Hall & Hall 1976), and behavior of a university hockey team (Anderson, Crowell, Doman & Howard 1988), among several other application domains. For a comprehensive review of goal setting studies, refer to Locke, Shaw, Saari & Latham (1981). Tubbs (1986) reports results of a meta-analysis of 87 studies in the general area of goal setting for the purpose of estimating the extent of empirical support for the major postulates of Goal Setting Theory.

Despite the rather impressive list of goal setting studies in organizational behavior, with a few notable exceptions, most of the

studies have focussed on amassing empirical descriptions of the goal setting effect. Inquiries into the motivational and cognitive mechanisms that may account the phenomenon have been unsystematic and rare. Partly as a consequence, goal setting literature has been beset by conflicts among researchers of different paradigms and paradoxical observations. The objectives of this dissertation include addressing the substantive issues related to goal setting and at the same time proposing an overarching conceptual framework that may account for the seemingly conflicting positions of different research traditions. In addition to providing an integrating conceptual framework, this dissertation addresses the contradictory findings in previous studies and develops an experimental methodology for testing the theoretical propositions.

The conceptual model describes the goal setting process in terms of intervening cognitive and motivational variables and identifies the relevant interrelationships in order to account for the static aspects of the goal setting phenomenon. Subsequently, the mechanisms and variables identified in the conceptual framework are used to explore some of the dynamic aspects of goal setting. There exists very little research that has been directed toward these issues.

Theoretical Perspectives

In the marketing literature, an overwhelming proportion of prior research on salesforce motivation has adopted the Expectancy-Value framework (e.g., Cron, Dubinsky & Michaels 1988; Ingram & Bellenger

1983; Oliver 1974; Teas 1981; Tyagi 1982; and Walker et al. 1977). Predictions generated from the Expectancy-Value model can help in explaining the motivational effects of externally set goals on salespersons' performance. However, there exist other paradigms that can be used to examine this issue and have implications that sharply oppose the implications of Expectancy-Value Theory.

Since this dissertation actually addresses a phenomenon rather than a specific question of theoretical interest alone, the theoretical perspective adopted is eclectic rather than exclusive. In addition to Expectancy-Value Theory (Vroom 1964, 1966) and Locke's Goal Setting Theory (Locke 1966, 1968), references are made to Atkinson's Achievement Motivation Model (Atkinson 1964, 1978; Atkinson & Feather 1966). Additionally, concepts drawn from Social Learning Theory (Bandura 1977a & b, 1982a & b; Bandura, Adams & Beyer 1977) are introduced to develop an integrative framework.

The framework presented suggests that these different theoretical perspectives are not necessarily opposed to each other as has been traditionally viewed in organizational behavior literature. On the contrary, these perspectives address separate although partly overlapping domains that can be made to mesh together in an overarching framework, so long as they are correctly interpreted.

This integrative theoretical perspective lends a richer accounting of the overall goal setting phenomenon, contributes to our understanding of substantive issues that had previously remained obscure, and provides

a framework based upon which subsequent research explorations may be attempted.

Summary

An important characteristic of the sales management context is the widespread use of and importance attached to sales quotas. These performance targets are also recognized to influence motivation and performance in the sales force. In marketing literature dealing with sales force issues, there exists very little prior research on the motivational effects of performance goals and related concerns.

In organizational behavior literature, on the other hand, research on goal setting has a rich tradition. However, limitations of prior research in this area include fragmented treatments of the processes involved in the goal setting effect. A large portion of the work done has been devoted to obtaining empirical support for select propositions within the paradigm, while attempts to explore the mechanisms and processes responsible for the goal setting phenomenon have been rare and fraught with controversies.

This dissertation contributes to the literature on salespersons' motivation and performance in marketing by

- (1) introducing emerging perspectives to the area; specifically, Locke's Goal Setting Theory, Atkinson's Achievement Model, and Bandura's concept of self-efficacy;
- (2) developing an integrative conceptual framework that reconciles conflicting theoretical positions;

(3) empirically examining the interrelationships among the various factors that are involved in the static aspects of the goal setting process; and

(4) extending prior research by examining issues related to the dynamic aspects of the effects of quotas on motivation and performance.

While the research in this dissertation is undertaken in a sales force context, the framework, propositions, and empirical results have broader implications. Estimating market share goals or objective arise in many marketing management and strategic management contexts. The proposed framework can potentially be modified to suit any organizational context within which motivated performance is important. The level at which the theoretical constructs have been dealt with in this thesis lends a good measure of generality to the propositions and recommendations outlined later.

CHAPTER 2

REVIEW OF LITERATURE

Overview

The integrated framework outlined in the next chapter draws upon concepts in Vroom's Expectancy-Value Model, Locke's Goal Setting Theory, Atkinson's Achievement Motivation Model, and Bandura's Self-Efficacy Theory. In this chapter, each of these paradigms is briefly reviewed and critically evaluated in the context of the goal setting phenomenon.

In organizational behavior literature, Vroom's Expectancy-Value Theory, Atkinson's Achievement Motivation Theory, and Locke's Theory of Goal Setting have been regarded for the most part as rival paradigms that offer competing recommendations regarding how goals should be set in order to maximize performance (Erez & Zidon 1984; Garland 1984; Hollenbeck & Klein 1987; Janz 1982; Matsui, Okada & Mizuguchi 1981; Mento, Cartledge & Locke 1980; Motowidlo, Loehr & Dunnette 1978). Some researchers have maintained that these research streams originate from separate traditions and that the differences between them are irreconcilable (e.g., Mento et al. 1980); while others have acknowledged the conflicts but have attempted to account for the predictions of one theory in light of another viewpoint (e.g., Matsui et al. 1981).

Following the overview, the remainder of this chapter is divided into five more sections. Sections two, three, and four broadly outline

each of Locke's, Vroom's, and Atkinson's model in turn, and describe how the proposals of each have been typically interpreted in the context of goal setting. The fifth section of the chapter examines in somewhat more detail studies dealing with and issues surrounding the comparisons and contrasts between these three theoretical viewpoints. The sixth and final section of this chapter is a critical exposition of the self-efficacy construct and its potential for contribution to the domain of goal setting.

Goal Setting Research

Locke's Goal Setting Theory

Locke's hypotheses concerning the effect of goals on performance have generally been referred to as Locke's Goal Setting Theory. The postulates of Goal Setting Theory are:

- (1) hard goals produce a higher level of performance (output) than easy goals;
- (2) specific hard goals produce a higher level of output than a goal of "do your best"; and
- (3) behavioral intentions regulate choice behavior. [Locke 1968, p. 157]

Locke et al. (1981) clarify that a basic assumption of the goal setting hypotheses is that the assigned goals are accepted by the individual. In other words, the goal setting effect (difficult and specific goals contributing to improved performance) may be expected to occur only when goals are accepted by the individuals to whom the goals are assigned.

Contributions of Locke's Theory--The Role of Conscious Intentions

Among the earliest instances of a laboratory study inquiring into the impact of goals on performance is included the work of Mace (1935), who found that subjects assigned a higher performance goal on a psychomotor task worked at a faster pace than those assigned a lower goal. Locke and his associates have played a major role in developing this finding into a stream of research on goal setting. Based on their investigations of task goals and motivated performance, they have established an influential research paradigm in organizational behavior that builds upon Ryan's (1958) conceptualization of motivated behavior. According to Ryan, one very important but under-emphasized determinant of motivated performance is the individual's intentions.

Previous research on issues related to behavior could be classified into one of two polarized groups. Behaviorists in the tradition of Skinner¹ chose to explain behavior without any reference whatsoever to the individuals' internal mediating processes; while most motivation and personality psychologists exploring the phenomena of performance emphasized processes that have been either left inexplicated or assumed to involve complex unconscious reasoning on part of the individual.

Locke (1966, 1968) highlights Ryan's notion that it is perhaps futile to attempt to conduct a laboratory experiment involving different

¹Refer to Skinner (1953, 1971, 1974) for detailed expositions of his position on the proper mode of inquiry into behavioral phenomena.

levels of performance of human subjects, in which the conscious intentions are not manipulated. Locke (1966) states that in electing to focus on uncovering the effects of the level of intended achievement on the actual level of achievement, his line of research departs sharply from the earlier, well-known approaches inquiring into the phenomenon of motivated performance. In his opinion, previous research on the determinants of performance, such as those that consider the effect of several social, situational or psychological factors on performance, do not specify what role the individual's conscious intentions play in the process and consequently remain considerably ambiguous. Locke (1966) mentions, for instance, the work of Atkinson (1958) and McClelland, Atkinson, Clark & Lowell (1953) on the relationship between need for achievement and performance. These researchers specifically acknowledge that the influence of "the need for achievement" on performance does not occur through the individual's conscious experience, even though it affects behavior visibly.

The Concept of the Goal--External vs Internal

* There have been some confusion regarding what goals actually mean due to imprecise definitions in some cases and differences in the theoretical foci in others. For an individual, goals may be externally set (i.e., set by another person or agency) or goals may be thought of as having been self-set. There exist strong theoretical and empirical justifications in favor of the argument that these two types of goals are substantively very different in terms of the way they influence

performance. While some later researchers have consciously and deliberately explicated what they mean by their use of the term goal with regard to whether it is externally set or self-set (e.g., Garland 1983, 1985), a number of previous studies suffer from ambiguity concerning this issue.

Locke et al. define a goal as "what an individual is trying to accomplish; it is the object or aim of action" (1981, p. 126). Based on this definition, it would appear that they are referring to an internal or self-set goal. This definition evidently obviates the issue of goal acceptance or goal rejection (by the individual), as is characteristic of self-set goals. However, they also acknowledge other frequently used concepts that are similar in meaning to that of a goal, as for instance, performance standard, quota, work norm, objective, deadline, and budget. Additionally, in their earlier experimental paradigm as well as in their statement of hypotheses, goals are, for the most part, identified with specific externally assigned target performance levels.

Locke's initial imprecision with regard to the the distinction between internal and external goals can be understood when one considers that the need for this distinction had not arisen at the time, and that Locke and his associates wanted to project a cognitive-psychological orientation as opposed to a stimulus-response behaviorist approach. Nevertheless, their enunciation of the construct has been subject to questioning, if not criticism. According to Naylor & Ilgen, "in order to describe goals with any degree of precision, much more must be addressed beyond {their} definition" (1984, p. 97). Garland similarly

points out that "confusion in literature . . . may stem from a lack of clear distinction between an externally assigned goal and a task goal, as defined here. . . . The task goal is self-set; thus, it makes little sense to question its acceptance by the individual" (1985, p. 348).

As the postulates of the Goal Setting Theory indicate, most of the early work and a substantial proportion of contemporary goal setting research concern externally set goals. Garland (1985), on the other hand, is an instance of a study that inquires into questions related to self-set or "task" goals. Research on externally set goals and self-set goals are not incompatible, however; a particular study may choose to include both kinds of goals as its objects of inquiry. As long as the concepts are clarified at the outset, it should not create either conceptual or communication problems. Garland (1983) and Stedry (1960) are examples of studies that include both assigned goals (external) and personal goals (internal) in their ambits.

Implications

In espousing his theoretical viewpoint and providing rationale for his hypothesis, Locke (1966, 1968) and his associates (Locke et al. 1981) explicitly indicate that their conceptualization poses a challenge and an alternative to Vroom's and Atkinson's notion of how motivated performance occurs. In their opinion, the idea that motivation and performance can be correlated with expectancy of task success not only contradicts their viewpoint but is flawed as well. The body of

empirical research in the tradition of Locke thus emerged as a rival paradigm to the theoretical perspectives of Vroom's and Atkinson.

In organizational behavior literature, however, an overwhelmingly large proportion of studies report only empirical support for the goal setting hypotheses without attempting to inquire into its theoretical structure. Consequently, goal setting has acquired the distinct flavor of being an applied tool to a greater extent than the reputation for being a cognitive construct at the focus of rigorous theoretical inquiry. It may be worthwhile to note at this juncture that some researchers have referred to the domain of goal setting variously as a "motivational technique" (Latham & Locke 1979; Locke & Latham 1984), a "motivational technology" (Naylor & Ilgen 1984), and the "technique of goal setting" (Locke 1978).

The framework proposed in this study attempts to account for the cognitive mechanisms responsible for the goal setting effect and interrelates them with the Expectancy Theory constructs.

Expectancy Theory

Background

The Expectancy-Value Model of Motivation, first introduced to organizational behavior by Vroom (1964), has had a substantial impact on research on salespersons' motivation in the marketing literature. Oliver (1974) first applied the Expectancy-Value Model, also referred to as Expectancy Theory, in a sales context. Walker et al. (1977) followed soon after and offered a conceptual model that identified a set of

individual, interpersonal, organizational and environmental variables that are likely to influence a salesperson's motivation and performance. While their model incorporates many concepts and research findings from industrial psychology, the foundation of the model rests on Expectancy Theory. Subsequent studies that have adopted the Expectancy-Value Model in some form or another include Cron, Dubinsky & Michaels (1988); Ingram & Bellenger (1983); Teas (1981); Teas & McElroy (1986); and Tyagi (1982, 1985).

Oliver (1974) notes that Expectancy Theory has its origins in the pioneering works of Lewin (1938) and Tolman (1932). Their studies suggest that humans (among several other organisms) possess approach-avoidance tendencies, which are influenced by cognitive representations of desirabilities of the end states of their target actions as well as some kind of mental calculus reflecting the contingency of the target action and the end state.

The Expectancy-Value Model

The basic postulate of Expectancy Theory as applied to organizational behavior (Vroom 1964) is that an individual's job performance (P) is a multiplicative function of his/her motivation (M) and ability (A), i.e.,

$$P = f (M \times A).$$

Motivation (M), in turn, is a multiplicative function of expectancy (E), valence (V), and instrumentality (I), so that

$$M = f (E \times V \times I).$$

Expectancy refers to the individual's subjective probability that effort will lead to a given level of performance, while instrumentality (I) is a subjective correlation¹ that the same performance level will be associated with certain outcomes. The valence (V) refers to the desirabilities of each of the outcomes associated with the given performance level. Valences can be both positive and negative.

One implication of Expectancy Theory which has wielded considerable influence on subsequent theorizing is the idea that the desirability of a reward and the individual's estimate of how likely he or she will be in securing the reward constitute equally important motivators of action.

The Expectancy Construct

Within the Expectancy-Value framework, the expectancy construct refers to an individual's assessment of the contingency between the level of effort expended at specific tasks and being able to achieve a specific level of performance. In the context of salespersons' motivation, expectancy may be defined as

¹Instrumentality, unlike expectancy, is not a probability estimate. Expectancies are typically scaled to range from 0 to 1.0, while the values of instrumentality are scaled to range from -1.0 to +1.0. Instrumentality is defined as the extent to which a given performance level is estimated to cause the attainment of an outcome or lead to the blocking (prevention) of the outcome. Mitchell (1979) argues that these properties of instrumentality make it a correlation estimate rather than a probability estimate. He notes, however, that several studies have failed to notice this subtlety and have measured instrumentality incorrectly.

the salesman's estimate of the probability that expending a given amount of effort on task (i) will lead to an improved level of performance on some performance dimension (j). [Walker et al. 1977, p. 162]

This conceptualization of expectancy adopted by Walker et al. (1977) is actually similar to a refinement of the construct of expectancy that was originally proposed by Porter & Lawler (1968) and subsequently amplified by Campbell, Dunnette, Lawler & Weick (1970). These researchers were instrumental in dividing expectancy into two parts: E-I, the perceived contingency between effort and performance, and E-II which refers to the perceived contingency between performance and outcomes. Prior to this, expectancy was often used to refer to the perceived contingency between effort and outcome. It is the E-I representation of expectancy that is reflected in the definition of Walker et al. (1977) and the one that is more commonly accepted in organizational behavior literature. While E-II also measures some aspect of expectancy, that measure is viewed as exerting no or, in the very least, an insignificant amount of impact in comparison with E-I. Expectancy I or E-I measures how the individual evaluates the possibility of task success; while E-II is, in a sense, a probabilistic estimate of the worth of that task success. That is, E-I is visualized as being more contiguous to the self and the motivational systems of the individual than any other measure. This idea is also explicitly advocated in Bandura's Self-efficacy Theory (Bandura 1977a & b, 1982a & b) as will be discussed in detail later.

Many researchers who have dealt with the Expectancy-Value framework, including some in applied psychology, have been quite unconcerned about this point regarding the concept of expectancy and

have interpreted the construct too broadly. Expectancy is often used as a global term to refer to the subjective probability that action will lead to a set of outcomes. These outcomes have been specified at very general levels and do not correspond to specific performance levels suggested in the refinements of the Expectancy-Value framework.

The misconceptions regarding what the expectancy construct actually stands for is evident in the way it has been measured in a number of studies. For example, Oliver (1974) operationalized expectancy as the subjective probability of an individual that his or her efforts would lead to the attainment of performance goals. The expectancy construct, as operationalized by Tyagi (1982, 1985), measures individuals' probability estimates that working hard will lead to high productivity, good job performance, and timely completion of work. In one of the two measures of expectancy, Kohli (1985) used a 3-item instrument that measured individuals' perceptions of "linkages between working hard and productivity, job performance, and doing a job well" (p. 428).¹

Sujan (1983) draws attention to this discord between the operational and conceptual definitions of expectancy. He speculates that the difficulty in measuring expectancy at the specific level could

¹In another measure of expectancy, however, Kohli (1985) used a modified version of a scale originally used by Sims, Szilagyi & McKemey (1976). The original scale was designed to measure "Expectancy I" (or E-I), as proposed by Porter & Lawler (1968) and subsequently amplified by Campbell, Dunnette, Lawler & Weick (1970).

have forced researchers of salesforce motivation to adopt more easily assessed global measures. He suggests that for a salesperson with several customers, a proper expectancy measure would involve questioning the salesperson (separately for each customer) regarding his/her estimates of the chances of achieving a target level of sales, given that he/she spent only a specific level of effort on the customer. Additionally, such measures should also be obtained for several different levels of effort (from 50% below normal to 50% above normal, for instance) in order to have a reasonable understanding of the salesperson's perceived effort-performance relationship. For example, one measure of expectancy used by Teas (1981) did consist of probability estimates concerning the the productivity of a 10% increase in selling efforts, a 10% increase in time devoted to obtaining to new accounts, and a 10% increase in time devoted to selling activities.

Another method similar to the one suggested by Sujan (1983) and adopted by Teas (1981) could involve obtaining separate expectancy measures corresponding to different performance levels (or goals). That is, the questions used for measuring expectancy could probe for individuals' probability estimates of achieving different levels of performance standards, instead of varying the projected effort levels. In fact, as will be discussed in more detail later, this conceptualization of expectancy is the one that is most meaningful within the context of goal setting research.

Antecedents of Expectancy

Uncovering factors that contribute to the development of expectancies has been an important objective of several studies (e.g., Oldham 1976; Peters 1977; Pritchard, De Leo & Von Bergen 1976; Sims, Szilagyi & McKemey 1976 in organizational behavior and Kohli 1985; Sujan 1983; Teas 1981; Teas & McElroy 1986; Tyagi 1982 in salesforce motivation literature). Sujan (1983), for instance, summarizes the antecedents of expectancy and categorizes them into one of the following four classes: ability related (such as, self-esteem, skills, and experience), reward contingencies (perceived link between effort and obtaining rewards), task related (such as, competition, territory potential, general economic condition, etc.), and organizational factors (e.g., job challenge and variety, job importance, task conflict, role overload, etc.).

For the purpose of this research on goal setting, a simpler, dichotomous classification scheme suffices. This scheme categorizes the antecedents of expectancy into either an internal or an external group. As a cognitive variable, expectancy is typically hypothesized to be influenced by other cognitive factors. That is, the probability estimates that constitute expectancies are viewed as consequences (or even integrations) of other cognitions. These two broad categories relate to Sujan's (1983) four categories as follows: internal factors, involving cognitions related to the self, and external (or task) factors that primarily involve the individual's perceptions of job characteristics and job environment. While the results of much of prior

research on the antecedents of expectancy are significant for goal setting research, the proposed internal/external categorization is the one that contributes most directly yet parsimoniously to the understanding of the forthcoming frameworks.

Internal antecedents of expectancy. In a review of organizational behavior research related to antecedents of expectancy, Mitchell (1979) identifies the following studies that considerably enrich our knowledge of internal (or self-related) factors which potentially contribute to expectancy. Oldham (1976) observed that individuals with higher self-esteem also possessed higher expectancies. A number of studies (Lied & Pritchard 1976; Mitchell, Smyser & Weed 1975; Sims, Szilagyi & McKemey 1976) found that individuals with internal locus of control have higher expectancies than those with external locus of control. The interpretation of this research suggested by Mitchell is that

people who are confident about their ability to influence the world around them see stronger relationships between what they do and the results of their actions than do people who see these outcomes occurring as a function of fate or luck. [1979, p. 255]

In literature on salesforce motivation, Walker et al. (1977) include self-esteem and perceived competence among suggested antecedents of expectancy. Their rationale is based upon the earlier work of Korman (1971) and Lawler (1970). Consistent with the preceding observations, Kohli (1985) found that salespeople's self-esteem has a strong effect on their expectancies. Teas (1981) found specific self-esteem to be positively related to expectancy. Earlier, Bagozzi (1978, 1980) had observed that self-esteem was related to performance.

In sum, there exists strong theoretical as well as empirical support for the contention that cognitions related to the self are included among valid antecedents of expectancy.

External antecedents of expectancy. Among external factors that are theorized to affect expectancy are included general economic conditions, territorial potential, competition and raw material shortages (Walker et al. 1977). Tyagi (1982) provides evidence that expectancy is also affected by "organizational climate variables" such as job challenge and variety, task conflict, job importance, leadership consideration and other such factors.

In the context of goal setting research, it is important to realize that along with perceptions concerning the self, task characteristics (or perceptions thereof) influence expectancy estimates as well. It is intuitive and completely reasonable to assume that as the task actually gets more difficult, individuals' perceptions of task difficulty will also reflect that change to a great extent. In other words, individuals' perceptions of task difficulty (and therefore expectancy estimates) are expected to follow and be influenced by objective characteristics of the task, including level of difficulty.

In organizational behavior literature, in an article reporting the results of an empirical study on the relationship between task design and individual responses, Alegra (1983) shows that an individual's perceptions reflect the objective character of the task and influence

attitudinal and behavioral responses.¹ Within the realm of goal setting research, this translates into the idea that "as goals difficulty increases, the (subjective) probability of goal attainment decreases" (Campbell 1982, p. 80). The idea that more difficult goals contribute to lowered subjective probabilities (or expectancies) of task success has been widely tested and accepted in this research domain (e.g., Garland 1982, 1983, 1984; Locke 1964; Matsui, Okada & Mizuguchi 1981; Mento, Cartledge & Locke 1980; Motowidlo, Loehr & Dunnette 1978).

Implications for Goal Setting

Since expectancy of task success may be expected to diminish as the externally set goal level is increased (i.e., made more difficult), Vroom's Expectancy Theory has often been interpreted to imply that as goals are made more difficult, motivation and task performance decrease monotonically (Garland 1984; Janz 1982; Motowidlo et al. 1978; Mento et al. 1980); or conversely, as subjective probability of success (or expectancy) increases, performance improves correspondingly (Dachler & Mobley 1973; Matsui & Tashitake 1975; Schwab & Dyer 1973; Sheridan, Slocum & Min 1975).

¹This study is a methodological refinement of a line of research based on the "job characteristic approach" (Hackman & Lawler 1971; Hackman & Oldham 1975, 1976). This approach views the task as perceived by the task performer as the determinant of behavior and attitude. Included among the conclusions arrived at through these studies is the one that suggests that perception of task performers is reasonably well grounded in objective reality.

Matsui et al. (1981), however, propose a more sophisticated explanation of how Expectancy Theory postulates may account for Goal Theory predictions. They suggest that for easy goals, while the expectancies for reaching the goal are high, the valences of doing so may be low. For difficult goals, the values of expectancy and valence would be reversed. It should be noted that treatment of valence in Matsui et al. (1981) is different from the traditional Vroomian exposition of the construct. In Vroom's theory, valence of an outcome is a summation of the valences (or the desirabilities) of the rewards associated with the outcomes. The conceptualization proposed by Matsui et al. (1981), on the other hand, bears a great deal of resemblance with Atkinson's notion of the incentive value of task success. Even so, the notion that difficult goals may be valued differently than easy goals is an important one in this context.

Garland (1984) contends that manipulating expectancy by varying goal difficulty violates the boundary conditions of Expectancy Theory. In his opinion, support for Expectancy Theory predictions may be found within a goal setting experiment provided certain conditions are met. Details of these and other issues will be discussed in a forthcoming section of this chapter devoted to comparisons and contrasts between the models.

In sum, however, theories originating from the expectancy-value tradition, including Atkinson's model, have for long been considered to be in conflict with Locke's proposals.

Achievement Motivation

Background

The Theory of Achievement Motivation (Atkinson 1964, 1978; Atkinson & Feather 1966) shares its genesis with Expectancy Theory in the early works of Lewin and his associates on the resultant valence theory of the level of aspiration (refer to Lewin, Dembo, Festinger, & Sears 1944, for a summary), and in the works of Tolman (1932, 1955). Consequently, it bears some resemblance with Expectancy Theory in its structure. At the same time, however, the Theory of Achievement Motivation possesses certain distinctive characteristics.

This line of research evolved from the works of a team of researchers which began at the University of Michigan in the late 1940s in the studies of the effects of hunger, and later of experimentally induced motivation to achieve, on the content of thematic apperception, i.e., imaginative behavior (Atkinson & McClelland 1948; McClelland & Atkinson 1948; McClelland, Clark, Roby & Atkinson 1949). Achievement Motivation Theory essentially developed from a research stream with a strong interest in enduring individual differences and their effects on performance. In contrast, Expectancy Theory centered more on the subjective analyses of potential rewards arising from behaviors.

"Motive" and "Motivation"

Within the framework of Achievement Motivation, the terms "motive" and "motivation" have distinct meanings. Motive usually refers to an individual difference variable, an inherent and stable property of the

personality. It is often characterized as "a latent disposition to strive for a particular goal-state or aim, e.g., achievement, affiliation, power" (Atkinson & Reitman 1958, p. 279). Atkinson's formal definition is as follows.

The term, motive, has been used to refer to the disposition within the person to strive to approach a certain class of positive incentives (goals) or avoid a certain class of negative incentives (threats). [1958, p. 303]

Motivation, on the other hand, is a term used to refer to the tendency, readiness, or inclination to initiate behavior. It has been characterized as the "aroused state of the person that exists when a motive has been engaged by the appropriate expectancy" (Atkinson & Reitman 1968, p. 279). This use of the term, motivation, is very similar to, if not identical with, the usage in most psychological theories, including Expectancy Theory. In Atkinson's language,

the arousal of motivation to approach, i.e., to perform the act, is equivalent to the expected positive utility of the consequences. Here the term motivation is used to designate the activated state of the person which occurs when the cues of a situation arouse the expectancy that performance of an act will lead to an incentive for which he has a motive. . . . The arousal of motivation to avoid, i.e., not to perform the act, is equivalent to the expected negative utility of the consequences. . . . The resultant motivation, which is expressed directly in performance, is a summation of motivation to approach and motivation to avoid. [1958, p. 304]

The Principle of Achievement Motivation

In mathematical terms, Atkinson suggests that for an individual the tendency to achieve success, T_s , can be expressed as follows.

$$T_s = m_s \cdot P_s \cdot I_s, \quad \text{where,}$$

m_s = the "motive" to achieve success,

P_s = the subjective probability (expectancy) of achieving success, and

I_s = the incentive value of success.

A crucial assumption in Atkinson's formulation of motivation is that the incentive value of achieving success is related negatively to the expectancy of achieving success as follows: $I_s = (1 - P_s)$. This negative relationship implies that the incentive value of success, i.e., the satisfaction derived from achieving the goal, is lowest for extremely easy tasks (which have high expectancies) and is the highest for very difficult or impossible tasks (whose expectancies are close to zero). Consequently, the expression for T_s reduces to

$$T_s = m_s \cdot (P_s) \cdot (1 - P_s).$$

Similarly, the tendency of the individual to avoid failure, T_f , can be expressed as $T_f = m_f \cdot P_f \cdot I_f$, where,

m_f = the "motive" to avoid failure,

P_f = the subjective probability of failure, and

I_f = the incentive value of failure.

Again, it is assumed that the incentive value of failure, I_f , is equal in magnitude but opposite in sign to the subjective probability (or expectancy) of success, P_s . In other words, $I_f = (- P_s)$. This implies that the incentive value of failure is always a negative quantity (or at best zero), since failure is a noxious event. Also, if the possibility of success is high (i.e., P_s is high), then the act of failing is more negatively evaluated than the converse situation where

the probability of success is low. The expression for T_f then reduces to $T_f = m_f.P_f.(-P_S)$.

Finally, Atkinson assumes that $P_S + P_f = 1$; so that $P_f = (1 - P_S)$. Consequently, we have $T_f = m_f.(1 - P_S).(-P_S)$;
i.e., $T_f = -m_f.(P_S).(1 - P_S)$.

The total (or resultant) tendency to approach or avoid, i.e., the consequent motivation, $T = T_S + T_f$.

That is, $T = [m_S.(P_S).(1 - P_S)] + [-m_f.(P_S).(1 - P_S)]$,

or $T = (m_S - m_f).(P_S).(1 - P_S)$.

If "m" represents the difference between the motive to achieve success and the motive to avoid failure, i.e., if $m = (m_S - m_f)$, then

the resultant tendency or motivation, T, may be expressed as

$T = m.(P_S).(1 - P_S)$, or, alternatively as

$T = m.[P_S - (P_S)^2]$.

Implications

The preceding mathematical expression for T suggests that the value of T is a continuous function of P_S . For positive values of m, T is minimized when $P_S = 0$ or $P_S = 1.0$; and maximized when $P_S = 0.5$. That is, for individuals in whom the motive to achieve success exceeds the motive to avoid failure, the task motivation will be nil when the expectancy of task success is 0 or 1; while the motivation will be the greatest for tasks associated with a 0.5 subjective probability of success. In other words, these individuals are motivated mostly by by tasks of intermediate difficulty and their motivation diminishes as the

perceived difficulty approaches the very easy (complete certitude of success) or the impossible (absolute certainty of failure).

For negative values of m , the situation is reversed: T is maximum at $P_S = 0$ and $P_S = 1.0$; and minimum at $P_S = 0.5$. That is, for individuals in whom the motive to avoid failure exceeds the motive to achieve success, task motivation will be minimum for tasks of intermediate difficulty and maximum for tasks that are either very easy (complete certitude of success) or impossible (absolute certainty of failure).

For individuals in whom the two motives are equal, task motivation is not contingent upon expectancy or subjective probability of success.

The Competitive Outlook

This section discusses the several studies that address the mutual conflicts and inconsistencies embodied in Locke's, Vroom's, and Atkinson's models.

Motowidlo et al. (1978) was one of the first influential studies to explore the possible contradictions. According to these researchers, the three aforementioned theories differ considerably with regard to their predictions of how increased levels of externally set goals affect performance. Their interpretation of the goal setting effect from the point of view of each of the three theoretically distinct positions is summarized as follows.

Vroom's Expectancy-Value Theory proposes that performance is directly related to motivation which in turn is a function of expectancy

and valence. Since difficult goals should translate into lowered expectancies, raising the level of difficulty of an externally set goal should diminish motivation and, consequently, performance in the task. In other words, Expectancy Theory is interpreted by Motowidlo et al. (1978) as suggesting that performance is a monotonically decreasing function of the level of difficulty of externally set goals.

In contrast, Locke's Goal Setting Theory explicitly states that more difficult and specific goals result in improved performance, provided the externally set goals are accepted by the individual performing the task. This implies that performance is a monotonically increasing function of the level of difficulty of externally set goals.

Atkinson's Achievement Motivation Theory provides the third distinct position with regard to the impact of goal difficulty on performance. According to Motowidlo et al. (1978), it follows from the propositions of Achievement Motivation Theory that individuals are likely to have the highest motivation for (and perform best at) tasks of intermediate difficulty. Thus, the relationship between the level of goal difficulty and performance is non-monotonic. Specifically, the relationship is an inverted U-shaped function, with the highest performance occurring at intermediate levels of goal difficulty for individuals in whom the motive to achieve success exceeds the motive to avoid failure. For individuals in whom the motive to avoid failure is stronger than the motive to achieve success, the relationship is an U-shaped function with performance at maximum for intermediate levels of task difficulty. Finally, for individuals in whom the two "motives" are

equal, performance should be independent of the level of task difficulty.

Motowidlo et al. (1978) suggest that the differential treatment of "goal specificity" in the various research paradigms may partly explain the fact that scholars of each of these conflicting viewpoints usually find support for only their own research hypotheses. For example, Locke and his associates have typically focussed on the effects of specific goals; while researchers in the tradition of Vroom and Atkinson have generally not utilized specific quantitative goals. Instead, task difficulty and probability of success were manipulated by reporting to the subjects varying proportions of task performers (subjects) who could be expected to succeed at the task. Motowidlo et al. (1978) hypothesize that for specific goals, task performance and probability of success should be negatively related (in accordance with Locke's proposal); while for ambiguous goals the relationship should be either positive or curvilinear. The authors found no support for Locke's model which posits an inverse relationship between expectancy and performance. On the contrary, they observed an inverted U-shaped relationship between objective probability of task success and performance, with the maximum performance occurring at intermediate probability levels. The relationship between subjective probability of success and performance was found to be linear and positive.

Mento et al. (1980) interpret the differences in the three paradigms similarly and also identify the different research traditions from which these separate positions evolved. These researchers,

however, challenged the validity of the findings of Motowidlo et al. (1980) and outlined a number of conceptual and methodological drawbacks in that study. According to Mento et al. (1980), the lack of support for Locke's assertion (that the expectancy-performance relationship is negative and linear) could be attributed to these drawbacks.

In the first of two experiments reported in Mento et al. (1980), the independent variables were goal difficulty and valence (manipulated by offering three levels of monetary incentives for reaching the assigned goal). These factors were used in a crossed factorial design and their effects on effort and performance were measured. The authors observed that performance was unaffected by any Goal Theory or Expectancy Theory variables. The results also indicated that subjective probability of success (expectancy) was negatively correlated with effort at a significant level. However, when the effect of "subjective goal difficulty" was partialled out, this correlation was reduced to nonsignificance. The most immediate determinant of effort was the level of the individual's personal goal. With this variable partialled out, the correlation between subjective goal difficulty and effort reduced to nonsignificance. A supplementary analysis revealed that the personal goal effect was greater for subjects with high expectancies than for those with low expectancies.

In the second experiment, the authors attempted to manipulate subjective probability of success and goal difficulty, orthogonally. It was found that expectancy and valence "were unrelated to effort and performance when the other factors were controlled" (Mento et al. 1980,

p. 438). However, these authors failed to replicate the negative, linear relationship between objective probability of success and performance as posited by Locke.

Garland (1984) attempts to integrate the diverging opinions and observations in the two aforementioned studies. He notes that while Mento et al. (1980) suggested that Expectancy Theory variables (expectancy and valence) affect goal acceptance, a Goal Theory variable; others have proposed the reverse. For instance, both Steers & Porter (1974) and Matsui et al. (1981) have asserted that goal attributes affect Expectancy Theory variables.

Garland (1984) suggests that some of the conflicts may be resolved by a closer look at how the relation between effort-performance expectancy and performance has been treated in prior goal setting literature. He notes that

researchers working in this area have failed to distinguish between expectancy-performance correlations within as compared to between goal groups. That is, although expectancy may be related negatively to performance across groups assigned goals of varying levels of difficulty, the relationship between expectancy and performance within goal groups may well be positive. Most researchers have simply ignored this distinction and collapsed goal groups when computing expectancy-performance correlations. This may account for the close to zero correlations that have been observed in previous studies. [Garland 1984, p. 80]

The author suggests that higher expectancies should contribute to higher performance, provided all things, including goals, are equal.

Implicit in Garland's (1984) arguments is the idea that for studies intending to measure expectancy-performance relationships, the varying of the level of goal difficulty cannot be considered a valid

operationalization of the expectancy construct, even though increasing the level of goal difficulty lowers expectancy. According to him, such an operationalization would systematically report a false lack of expectancy-performance relationship. The precise manner in which expectancy fits into the goal setting phenomenon, as suggested by the integrating framework proposed in this study, shall be delineated in a forthcoming section of this report.

Concerned with the controversy surrounding the expectancy-performance relationship, Janz (1982) manipulated subjective expectancy by providing differential feedback of performance scores to individuals assigned the task. His results provide partial support for the view that expectancy-performance relationship is inverted U-shaped. The findings also revealed that subjects with intermediate levels of expectancy outperformed those having low or high expectancies.

Erez & Zidon (1984) proposed that goal acceptance could be a factor that moderates the relationship between expectancy and performance and could be a key factor in reconciling the inconsistencies between Locke's and Atkinson's models. They found support for their hypotheses that the expectancy-performance relationship is positive and linear for accepted goals; it is negative and linear for rejected goals; and the slope reversal (from positive to negative) is associated with transition from positive to negative values of goal acceptance. Earlier, Steers & Porter had expressed a similar idea in their conjecture that

part of the seeming contradiction between Atkinson and Locke is that Locke was defining the right half of Atkinson's bell-shaped curve as either approaching or lying within a zone of impossibility, and thus it was not considered part of the goal difficulty-performance relationship. The remaining left half of Atkinson's curve closely resembles Locke's increasing linear function. [1974, p. 442]

It requires to be mentioned at this juncture, however, that both Erez & Zidon (1984) and Steers & Porter (1974) are actually offering theoretical rationale for the inverted U-shaped curve in particular, rather than providing empirical support for the original Achievement Motivation Model. Atkinson's original model include proposals that generate U-shaped, inverted U-shaped, or flat (i.e., horizontal) expectancy-performance relationships. In other words, these studies have attempted to inquire beyond the boundary conditions of Goal Setting Theory and have proposed that the inverted U-shaped curve is a natural extension of Locke's model rather than provide theoretical insights that integrate Locke's conceptual foundations with those of Atkinson.

Additionally, Atkinson's formulation specifies that performance and motivation should be maximum when subjective probability is 0.5, while Erez & Zidon (1984) found the threshold for goal rejection to be located between objective probabilities of 0.1 and 0.3. These authors did not report subjective probability-performance relationships, except to indicate that subjective probability correlated significantly with objective probability, with correlation coefficients very close to one. It must also be noted that, contrary to the observations of Erez & Zidon (1984), Locke and his associates have found no effect of goal acceptance on performance in several studies (Frost & Mahoney 1976; London & Oldham

1976; Mento et al. 1980; Oldham 1975; Yukl & Latham 1978). Finally, Erez & Zidon (1984) manipulated objective goal difficulty and did not report the correlations between subjective goal difficulty and performance. As Janz (1982) notes, it is the correlation between subjective probability and performance which is the focus of the controversy. Also, as Garland (1984) has observed, it is possible to obtain stable relationships between levels of goal difficulty and performance (i.e., objective probabilities of success and performance) across goal groups; while the expectancy-performance correlations may remain positive within goal groups. However, having stated all this, this study acknowledges the importance of the work of Erez & Zidon (1984) in contributing toward an integrated framework that will eventually reconcile a good measure of the conflicts examined thus far.

Hollenbeck & Klein (1987) develop the idea proposed by Erez & Zidon (1984) further in distinguishing between goal commitment and goal acceptance. They adopt the definition of goal commitment originally suggested by Campion & Lord (1982) and indicate that "commitment implies the extension of effort, over time, toward the accomplishment of an original goal and emphasizes an unwillingness to abandon or lower the original goal" (Hollenbeck & Klein 1987, p. 212). On the other hand, acceptance of difficult goals is supposed to refer merely to "the initial use of a goal assigned by another person as a referent. Goal acceptance does not necessarily imply that the individual is bound to the standard" (Hollenbeck & Klein 1987, p. 212). These authors propose an Expectancy Theory Model of the goal commitment process in which, they

suggest, goal commitment is a function of the multiplicative interaction of the "attractiveness of goal attainment" and the "expectancy of goal attainment." Goal commitment, in turn, moderates the relationship between goal level and task performance. The authors identify several antecedents of "attractiveness of goal attainment" and "expectancy of goal attainment," which they classify into situational and personal factors.

One issue that this model has overlooked is the possibility that the goal levels themselves affect expectancies of goal attainment (with higher or more difficult goals contributing to lowered expectancies). Although the authors acknowledge that feedback loops may exist, omission of this well known effect reduces the model to an unacceptable level of simplicity, so far as its capability to integrate conflicting paradigms is concerned.

Self-Efficacy

Background

The self-efficacy construct is introduced within the context of goal setting since the conceptual framework in this study uses the construct to interrelate Goal Theory and Expectancy Theory variables. However, the treatment of the construct in this study will differ somewhat, especially with regard to the way it is measured. Details of these and other issues are described in this section.

Self-efficacy is a key construct in Social Learning Theory (Bandura 1977a). Bandura describes this theory as an unified framework

for analyzing human thought and behavior. Social Learning Theory emphasizes the importance of vicarious, symbolic, and self-regulatory processes in psychological functioning and adopts a perspective that attempts to explain behavior in terms of a continuous reciprocal interaction between cognitive, behavioral, and environmental determinants. In espousing the case for an interactionist position, Bandura (1977a, 1982b) suggests that the traditional view of interactionism, the idea that behavior results from the interaction of persons and situations, needs refinement.

The interactionist approach is usually embodied in the relation $B = f(P, E)$, where B represents behavior, P the person, and E the environment. According to Bandura, the traditional interpretation of the interactionist position adopts a static perspective since it considers the person and the environment to be independent entities that combine to result in behavior. This notion of interaction, termed "unidirectional" by Bandura, is a severely limited view of behavioral phenomena, since person and environmental factors can and do influence each other.

A more advanced but still somewhat deficient conceptualization is reflected in the "partly bi-directional" view of interaction. In this, persons and situations are acknowledged to be interdependent causes of behavior; but behavior is considered to be merely a consequence with no influence in the causal process $[B = f(P \leftrightarrow E)]$.

In the social learning view of interaction, known as "reciprocal determinism," behavior, personal factors, and environmental factors are considered to be mutually interactive determinants of each other.

Bandura (1982b) suggests that it is difficult and perhaps impossible to study all aspects of this triadic reciprocity at the same time. Researchers may choose to focus on different segments of the interlocking reciprocity, without denying the existence and the possibility of influence by other parts of the chain. For instance, some investigators choose to inquire into the interaction between cognition and behavior and explore how conceptions, beliefs, perceptions of the self, and intentions affect behavior, on one hand; and how the consequences of behavior, in turn, alter thought patterns and affective responses. The author cites his own exposition of the self-efficacy construct (Bandura 1977b) as belonging to this domain.

The Construct

Self-efficacy is an individual-difference construct that refers to a person's perception of his or her own level of mastery within a limited task domain. In Bandura's language, "perceived self-efficacy is concerned with judgements of how well one can execute courses of action required to deal with prospective situations" (1982a, p. 122).

From the social learning perspective, knowledge and skills are necessary but not sufficient for successful performances or accomplished behavior. Evidence for this belief is found in the frequent suboptimal behavior of individuals, even when they possess full knowledge of the

required behavior patterns. Bandura (1982a) argues that self-referent thought is a powerful motivator of the relationship between knowledge and behavior. Beliefs concerning a person's own capabilities are clearly very strong determinants of the inclination (or motivation) that individuals develop for either approaching and persisting in a course of action or avoiding a given behavior. Although self-efficacy does correlate with true ability to a considerable extent, this relationship is susceptible to a significant amount of influence from factors that relate to how the task is structured for the individual, and the manner in which it is learned or abstracted by the task performer. Bandura suggests that

efficacy in dealing with one's environment, is not a fixed act or simply a matter of knowing what to do. Rather, it involves a generative capability in which component cognitive, social, and behavioral skills must be organized into integrated courses of action to serve innumerable purposes. . . . Self-efficacy judgements, whether accurate or faulty, influence choice of activities and environmental settings. People avoid activities that they believe exceed their coping capabilities, but they undertake and perform assuredly those that they judge themselves capable of managing. . . . Judgements of self-efficacy also determine how much effort people will expend and how long they will persist in the face of obstacles or aversive experiences. [1982a, p. 122-123]

The construct of self-efficacy has been found to be a powerful determinant of motivated performance in the realm of behavior modification within which it was developed. The original studies dealt with uncovering the antecedents of self-efficacy and measuring how well it correlated with performance, in settings involving modification of avoidance behavior of phobics (Bandura & Adams 1977; Bandura, Adams & Beyer 1977; Bandura, Adams, Hardy & Howells 1980; Lee 1984).

Subsequently, the effectiveness of the construct has been tested in a wide range of application domains including the prediction of writing performance (Meier, McCarthy & Schmeck 1984), behavior of sex offenders (Segal & Marshall 1986), occupational preferences of college students (Betz & Hackett 1981; Clement 1987; Wheeler 1983), performance in athletic activities (Feltz 1982; Feltz & Mungo 1983; Feltz, Landers & Raeder 1979; Lee 1982; McAuley 1985; McAuley & Gill 1983; Weinberg, Gould & Jackson 1979; Weinberg, Yukelson & Jackson 1980), adoption of new technology (Hill, Smith & Mann 1987), and in the training for pain tolerance (Manning & Wright 1983; Vallis & Bucher 1986), as well as in the context of training for weight control/reduction (Bernier & Avard 1986; Glynn & Ruderman 1986), controlling the smoking habit (Condiotte & Lichtenstein 1981; DiClemente 1981; DiClemente, Prochaska & Gibertini 1985; Godding & Glasgow 1985)), and treatment for alcoholism (Rollnick & Heather 1982).

Within the context of organizational behavior, self-efficacy has been found to be a determinant of goal-choice (i.e., the level of self-set goal) in a performance task (Locke, Frederick, Lee & Bobko 1984). This study indicated that self-efficacy continued to be a significant predictor of future performance even when past performance was controlled. Based on their observations, these authors speculated that the self-efficacy concept could provide an integrating mechanism between the goal-setting and social-learning-theory approaches to task performance. Bandura & Cervone observed that "self-evaluative and self-efficacy mechanisms mediate the effects of goal systems on performance

motivation" (1983, p. 1017). Locke, Latham & Erez (1988) consider both self-efficacy and expectancy of task success to be antecedents of goal commitment, which in turn is a critical requisite for the goal setting effect to occur. Gist (1987) argues that the concept of self-efficacy is one of enormous significance to the domain of organizational behavior and human resource management and that it should receive far more attention than it has received thus far.

In view of the diversity of the application areas of the self-efficacy concept and the robustness of its theoretical foundations, it appears to hold substantial promise with regard to its potential for contributing toward an overarching framework. Even before delving into the intricacies regarding definitional and measurement issues, it appears to be intuitive that the results of studies reviewed earlier indicating the salutary effect of high expectancies on performance are not in contradiction with studies reporting enhanced performance on account of high self-efficacies. Similarly, those studies that have hypothesized or reported high self-esteem to be an antecedent of improved expectancy and performance could also be interpreted as providing complementary evidence for the self-efficacy effect. However, it is not as if that the interrelationships between these constructs are completely clear from their prior treatment in the literature. In particular, Self-Efficacy Theory was often positioned as a rival paradigm to Expectancy Theory (e.g., in Lee 1984). However, a substantial amount of the conflicts (or consonance) depends on the exact manner in which these constructs are interpreted. These issues,

specifically comparisons of self-efficacy with related constructs and the corresponding theoretical and measurement concerns, are explored in the following sub-sections.

Self-Efficacy and Expectancy--Theoretical Issues

Both self-efficacy and expectancy are constructs that invoke cognitions concerning anticipated performance. It is not surprising, therefore, that there should exist a close correspondence between them. In fact, it should be possible to delineate the relationships between all such concepts involving self-related cognitions (e.g, self-esteem) which have some bearing on behavior.

One problem that arises in the attempt to compare and contrast such constructs is the fact that often their treatments in the hands of different researchers have been dissimilar. Also, some of them have undergone evolutionary changes ranging from the subtle to the substantial during the course of their existence. As a result, it becomes almost impossible and, to some extent, pointless to venture into a comparative study unless the concepts are formally and strictly defined.

As mentioned before, prior to the refinement proposed by Porter & Lawler (1968), expectancy was regarded as the subjective probability that effort on a task would lead to a given outcome. For this reason, Bandura (1977a & b) refers to this traditional view of expectancy as "outcome expectancy." He argues that self-efficacy, also referred to as "efficacy expectations," is a better predictor of behavior than outcome

expectancy. According to him, individuals may believe that a particular course of action will result in certain outcomes and yet doubt whether they themselves can execute those actions. He represents the differentiation between outcome expectancy and self-efficacy as the difference in the links of the causal path: Person - Behavior - Outcome. Efficacy expectations refer to the subjective contingency between Person and Behavior; while outcome expectancy refers to the subjective contingency between Behavior and Outcome.¹

In this respect, self-efficacy bears a striking resemblance to the concept of expectancy I or E-I proposed by Porter & Lawler (1968) and elaborated by Campbell et al. (1970). Since expectancy I refers to the subjective probability that effort will lead to a specific level of performance, the similarity is quite obvious. However, researchers who have noticed this resemblance also emphasize that fundamentally self-efficacy is a more broad-based and inclusive concept than expectancy I (Gist 1987; Locke et al. 1984). For instance, Gist indicates that the definition of self-efficacy "implies that judgements of efficacy depend on more than effort considerations and, thereby, subsume variables not included in E₁" (1987, p. 477). Also, in most studies, self-efficacy

¹Lee (1984) attempts to demonstrate empirically that efficacy expectations are superior predictors of performance than outcome expectancy. However, other researchers (Eastman & Marzillier 1984; Marzillier & Eastman 1984) have criticized these ideas on grounds that (1) a task cannot be defined without some reference to outcome, and (2) outcome expectancy does contribute to future behavior irrespective of whether individuals believe in their competence to perform the task. (See also Bandura's [1984] response to these criticisms).

measures include expectation ratings for a wide range of performance levels; while each expectancy measure corresponds to only one specific performance level.

For the purpose of this study, self-efficacy is regarded as the individual's perceived sense of mastery in a given performance domain, in accordance with Bandura's (1982a) definition. Expectancy, or expectancy of task success, specifically refers to an individual's subjective probability that he or she will achieve a specific level of performance on a given task. Thus, as the characteristics of the task are varied, expectancy of success at the task may also be expected to change. Self-efficacy, on the other hand, is conceptualized as a more global and stable variable whose values remain relatively unaltered over a range of performance levels in a given task domain.

The global aspect of self-efficacy is embodied in the idea that an individual's perceived sense of mastery in a given performance domain may have generalization effects on similar or related domains of performance. For instance, an athlete who considers himself or herself competent in a particular sporting activity is likely to transfer (or generalize) some of that sense of competence to related or similar sporting activities. This generalization effect would nevertheless be dependent upon how similar the performance domains (across which the transfer effect occurs) are perceived to be; or how performance domains are demarcated. The more similar the different performance domains are perceived, the greater will be the generalization effect. Also, if two activities with highly similar physical characteristics are classified

as belonging to separate performance domains, then the generalization effect across those domains will also be large.

Self-efficacy is also a relatively enduring variable. Individuals develop impressions of personal efficacies over a period of time through several sources of information, included among which are enactive mastery (i.e., sense of accomplishments derived from actual successful participation in an activity), vicarious experience, verbal persuasion, and emotional arousal (Bandura 1977a & b, 1982b; Bandura, Adams & Beyer 1977; Gist 1987). Impressions of efficacy are, therefore, composite indices of individuals' sense of competence. In contrast, expectancy of task success is directly related to how difficult the task (and the assigned level of performance or goal) is perceived to be. Manipulating expectancy is possible by varying the characteristics of the task. Self-efficacy, on the other hand, may be altered only by changing the individual's overall impression of his or her general capabilities in the performance domain in question. The idea that self-efficacy is relatively enduring should not however be construed to imply that it is impervious to change. Also, unlike personality variables, it is not an inherent property of the individual that has little or no susceptibility to external influences. As Bandura emphasizes, "self-referent thought is indexed in terms of particularized self-percepts of efficacy that can vary across activities and situational circumstances rather than as a global disposition assayed by an omnibus test" (1982, p. 124).

Self-Efficacy and Expectancy--Measurement Issues

Traditionally, expectancy measures have been obtained by having subjects report probability estimates of their attaining an outcome (or the achieving of a performance level, in the case of E-I) in the context of a task. For instance, if a respondent reported that he or she estimated his or her chances of attaining a given performance level was 70%, then expectancy (E-I) was considered to be 0.7. This method of measuring expectancy is consistent with the way in which the construct has been defined in this study.

In the case of the measurement of self-efficacy, the issue is not as simple. Efficacy has also been measured using probability estimates or composites of probability estimates (Bandura 1980; Bandura & Adams 1977; Bandura & Cervone 1983; Bandura & Schunk 1981; Bandura, Adams & Beyer 1977); as well as mean responses on specially constructed scales (Barling & Beattie 1983; DiClemente, Prochaska & Gibertini 1985; Glynn & Ruderman 1986; McAuley & Gill 1983). It is my contention that the typical measures of self-efficacy utilized by Bandura and his associates capture only a narrow aspect of the self-efficacy construct.

Consider, for example, a study by Bandura & Cervone (1983) in which self-efficacy was measured by having the subjects rate how certain they were about attaining each of the several goal levels on 100-point scales. That is, although each of the respondents were assigned only one particular goal level, their estimates of the probabilities of goal attainments were obtained for several other performance levels which were not assigned to them. This measure of self-efficacy is no

different than a measure of expectancy with the exception that self-efficacy was measured with respect to a range of performance levels in addition to the assigned goal level. In other words, self-efficacy is measured merely as a composite of expectancy scores or sometimes as a mean of all the expectancy estimates measured.

These composite expectancy scores (or means of scores) are likely to be higher for those high in self-efficacy (on account of the reasons mentioned as follows) and therefore their use as surrogates for self-efficacy should not have caused inconsistent results. Goal theory predictions would suggest that expectancies of task success diminish as goals are made more difficult. Therefore, measures of expectancies for a series of goals of increasing difficulty should generate downward sloping curves (for all individuals). However, individuals with high self-efficacies are likely to have downward sloping curves that have larger intercepts and, perhaps, less negative slopes (i.e., less steep slopes) in comparison with those low in self-efficacy.

In spite of the fact that there is probably no real danger of obtaining inconsistent results on account of measuring self-efficacy as described, the question is one of construct validity. It has been reiterated on several occasions that the self-efficacy construct subsumes many more facets of the behavioral phenomena than expectancy does (Gist 1987). Bandura emphasizes that the focal interest of Self-Efficacy Theory is "the dynamic interplay among self-referent thought, action, and affect" (1982a, p. 124). This construct is thought to account for phenomena as varied as coping behavior produced by different

modes of influence, level of psychological stress reactions, self-regulation of refractory behavior, resignation and despondency to failure experiences, among others (Bandura 1982a). The measurement of a construct as broad-based as this ought not to be limited merely to expectancy ratings.

I contend that measures of self-efficacy should incorporate specially constructed scales that tap into the individual's composite impression of his or her capability in the task domain in question. The conceptual model in the following chapter espouses the idea that nomologically self-efficacy may be an antecedent of composite or mean expectancy scores (and proposes exactly that in a later section of this report); and, therefore, expectancy measures may, if required, be used as manipulation checks for self-efficacy (as has been done in Weinberg, Gould & Jackson 1979).

Bandura acknowledges that "self-efficacy scales vary in their structure depending upon the domain of functioning and the specificity with which it is being examined" (1984, p. 241). Several researchers have consequently developed scales specific to their area of inquiry and some have even tested the validity of the scales constructed specifically to assess self-efficacy within a given performance domain (e.g., Glynn & Ruderman 1986).

In sum, then, self-efficacy is a construct that is conceptually distinct from expectancy. It also subsumes the expectancy variable and, therefore, previous attempts to measure self-efficacy by expectancy

scores over a performance range have generated results not inconsistent with theory.

Self-Efficacy and Self-Esteem

There exist studies in the area of salespeople's motivation which indicate that self-esteem is often a valid antecedent of expectancy. The interrelationship between these two constructs and self-efficacy may be viewed as a hierarchical progression of antecedents, in which self-esteem is the most broad-based which subsumes both self-efficacy and expectancy; while self-efficacy is the second in line and is an antecedent of expectancy. Schematically, this can be represented as: Self-esteem > Self-efficacy > Expectancy.

This schematic representation only suggests the ordering in terms of the direction of influence so far as these three variables are concerned. It is not implied in any way that this represents a complete picture with regard to all possible antecedents that either expectancy or self-efficacy can have. The idea expressed in this representation is that self-esteem is the broadest of the three variables in question; and it is imaginable that an individual with high self-esteem may have an elevated sense of efficacy compared with an individual low in self-esteem. In other words, it is proposed that previous studies that have demonstrated positive effects of self-esteem on expectancy are not only consistent with this scheme but can also be interpreted in its light.

CHAPTER 3

THE CONCEPTUAL MODEL

This chapter describes a conceptual model that integrates previous research on the overall goal setting phenomenon. The model identifies relevant motivational mechanisms that intervene in the effect of an externally set goal on performance. By providing an overarching theoretical framework, the model accounts for the putatively conflicting viewpoints of different research traditions that were examined in the previous chapter. Additionally, it generates theoretical propositions concerning different effects of goal setting. This chapter describes the conceptual model and develops the set of propositions. In the next chapter, the methodology to be employed for testing a select group of these research propositions is discussed.

The following section of this chapter briefly reviews some of the earlier attempts to account for or explain the goal setting effect. In the process, the necessity of developing a more complete, conceptually oriented framework is highlighted.

For the purpose of clarity and also because of the opportunity it provides for detailed examination of the several aspects involved in goal setting, the conceptual model will be described in a number of progressive stages. In a subsequent section, this scheme is described

more fully and its advantages are outlined. Finally, the different aspects of the model are discussed and integrated.

Objectives of the Model

As mentioned in Chapter 2, despite the proliferation of studies that have attempted to demonstrate the enhanced effects of difficult and specific goals on performance, theoretical inquiries into the mechanism responsible for the phenomenon have been rare.

Locke's earlier studies (1966, 1968) suggested that difficult goals are responsible for generating and elevating behavioral intentions. Intention to perform, in turn, contributes to actual performance. Although, there has been some discussion concerning identification and acceptance of goals in terms of cognitions and evaluations, the goal-intention-performance link was viewed as adequate "explanation" for the Goal Theory propositions.

For example, Locke & Latham (1984) refer to goal setting as a technique. In their opinion, the following "causes" or reasons are responsible for the fact that the technique produces its intended results: 1) specific goals direct action more reliably than vague or general goals, 2) goal specificity results in clear expectations, and 3) the harder or more challenging the goal, the better the performance. The preceding rationale is somewhat tautological since there exists an obvious confound between what is being explained and that which is being used to explain it.

However, Locke et al. (1981) do mention that they view goal setting as primarily a motivational mechanism that necessarily involves

cognitive elements as well. They suggest that "the goal setting mechanisms" involve the following: 1) goals direct attention, 2) goals mobilize effort, 3) goals induce persistence in effort, and 4) goals motivate strategy development.

The studies previously reviewed and cited in this chapter do not follow a systematic method in providing a conceptual explanation of the goal setting phenomenon, because researchers in this tradition have focussed on the identification of the correlates and the epiphenomena associated with the goal setting effect rather than on conceptual explanation. Consequently, in their attempts at describing the effect, these researchers have amassed a large number of variables associated with the goal setting effect. However, attempts at orderly structuring of the theoretical explanation of the phenomenon fall far short of their impressive record of empirical studies.

One of the objectives of this conceptual framework is to examine and account for the goal setting effect and related phenomena in terms of the intervening cognitive and motivational processes in a systematic manner. While the previous research has focussed mainly on describing how the goal setting effect works, this model predominantly inquires into why the effects occur as they do, and the conditions under which they are likely to change.

Scheme Adopted for Describing the Conceptual Model

As a brief and somewhat simplified introduction, the integrated model suggests that externally set goals affect performance through several intervening variables and multiple pathways. The ultimate

impact on performance is contingent upon the interactive effects of factors that moderate the relative strengths and direction of the pathways.

As can be expected, externally set goals affect performance in multiple ways and combine with other factors in the process. My exposition of the goal setting effect, however, will initially consider only the "primary effects" in isolation and later explore the relevant interactive effects. In other words, I will begin to examine why increasing externally set goals improves performance, without considerations of any other situational factors, such as rewards, task structure, etc., or any inter-individual differences.

The development of the framework begins with a reexamination of the goal setting effect--the phenomenon of more difficult goals contributing to better performance. The rest of the model is built around this central "pathway" or route.

The following section contains a detailed description of the mechanisms involved in this central link, referred to as the Extended Compliance Path.

The Extended Compliance Path

Overview of the Path

This pathway (as one of the several through which such effects may occur) suggests that the level of externally assigned performance target corresponds to a cognitive encoding of the external goal by the individual to whom the task is assigned. This internal representation of the goal influences his/her intention to perform at the assigned

task. The effect on intention to perform is carried over to the actual resources expended by the individual and that, in turn, contributes to performance. This extended compliance pathway is schematically represented in Figure 3.1.

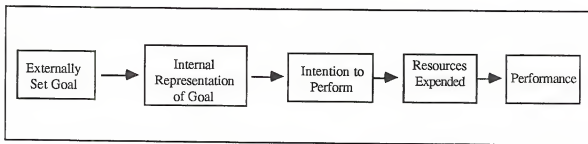


Figure 3.1: The Extended Compliance Path

Cognitive Representation of Goal

Externally assigned goals are necessarily exogenous variables in so far as they are manipulated and varied in an environment external to the individual's cognitive system. Also, the level of the goals can be quantitatively measured (in terms of physical units) without any reference to the internal system. It is proposed that when a task is presented to a task performer, the individual in question forms a composite impression of the task from all the information regarding the task that is available to him or her. One very important piece of information that is utilized by the individual in forming a cognitive representation of the task is the actual level of the assigned goal. The internal representation of the task is, in a sense, a cognitive mapping of the actual task presented to the individual.

Similarly, the actual level of the goal assigned can be viewed as influencing an internal representation of the task goal. It can also be

thought of as being "assigned" a certain value along a (cognitive) dimension of the task which represents goal difficulty or level of goal. It is not only unnecessary for this study but also beyond its scope to inquire into the detailed architecture of such a cognitive structure. It suffices to mention, however, that if external goals influence intentions, then they must also be "encoded" cognitively at some level before they can influence intentions or performance.¹

This encoded or internal representation of goal can be thought of as an individual's understanding of what the goal level stands for at a general level. That is, this primary encoded representation takes place even before the person's own ability concerns are considered and is only a general mapping of the external goal in the abstract. Individuals may be visualized as being able to appreciate the implications of different levels of goals even for a task that they will never personally confront. The abstract appreciation that increasing goal levels at any task generally corresponds with increased effort requirements on part of the task performer is a manifestation of internal representations of goals at the global or general level. This is not to say that people ordinarily do not factor in ability concerns for tasks that they will or will not confront--they probably always do. But the mechanism being proposed here suggests that evaluation of the task or goal difficulty in

¹The scheme adopted here pursues an "encoding-processing-output" orientation toward analyzing information processing issues. This is not only conducive toward analyzing motivational mechanisms that have behavioral manifestations but is also consistent with a large body of literature that adopts this model.

relation to self-appraised ability occurs subsequent to a relatively primary encoding of the goal. In other words, an individual's response to a task goal is contingent upon how the goal itself is encoded at a general level as well as other factors including cognitions about the self. It is theoretically important to study each of these separate effects in isolation (as different links of the entire model) in order to obtain a clear picture.

Proposition 1: The level of performance goal assigned to an individual in the context of a task is encoded internally, such that the actual or physical level of the goal (measured in quantitative terms) corresponds to the internal representation of goal.

The preceding idea is schematically expressed in Figure 3.1 by the link between the "level of externally set goal" and "internal representation of goal."

Effect on Intention--The Compliance Mechanism

One of the ideas expressed explicitly by Locke (1966, 1968) is that individuals respond to external goals by raising their intentions to perform as long as the goals are accepted. He indicates that difficult goals hold more "challenge" for the participants but does not extend or develop this concept any further. The notion of challenge associated with difficult goals involves considerations of intrinsic rewards. Such matters will be addressed and integrated with the model in a later section. It requires to be mentioned, however, that apart from the effects of "challenge" there may exist other mechanisms through which the primary goal setting effect can take place.

It is significant that the response of subjects to performance targets even in very simple and unexciting tasks have consistently supported the Goal Theory postulates in several studies. The earliest and some of the simplest applications of goal setting involve experiments in which subjects were asked to perform at a certain level in a simple motor task (e.g., Eason 1963; Eason & White; 1961) or a paper and pencil task involving simple arithmetic (e.g., Mace 1935) or a task such as listing of words (Locke 1966). The subjects' actual performances were found to correspond closely with the assigned goals.

It is difficult at times, if not impossible, to extract any sense of how a difference between two goal levels in a very dreary task could generate so much "challenge" that it could account for the entire effect. It is the existence of the goal setting effect in these tasks, however, that lend an indication or clue regarding one mechanism by which goals affect performance.

An important aspect of social behavior that is of interest in this context is that the subjects in these studies seem to respond "adaptively" to whatever the task demands are (within a reasonable limit) and try to comply with that which is asked of them. This idea is also evident in Locke's concern that goal setting results may appear "obvious" in some cases since "the subjects were presumably doing what they were told" (1966, p. 62). It is proposed here that (in addition to the other pathways through which goals may affect performance) some of the results seen in goal setting studies owe much to what can be termed as the "compliance effect." This effect describes the phenomenon in which individuals redirect their intentions and efforts and modify their

intended responses to match the changing requirements of the task (within certain bounds).

Although by no means a depiction of the entire range of motivated behavior, this idea finds support in the work of Feldman and Lynch (1988) who propose that behavior is at least partially "mindless" in the sense that much day-to-day action occurs without deliberate intent and without awareness of controlling factors. As an example, these authors suggest that it is unlikely that people choose to attend work every day after consciously evaluating the advantages of doing so. They respond without deliberating at any length to what they perceive as certain environmental demands as they become aware of them.¹

Proposition 2: The individual's internal representation of goal has a direct positive effect on the his/her intention to perform; individuals modify their behavior simply in response to the task requirements--the goal level, in this case.

The details regarding the conditions under which the preceding statement will (or will not) be valid shall be amplified later. The preceding proposition embodies the compliance mechanism and is depicted schematically in Figure 3.1 by the link between "internal representation of goal" and the "intention to perform."

¹This does not imply, however, that this behavior is "irrational" or unusual in any other way. Exploration of the origins of such behavioral habits can reveal their underlying causes or reasons. At a molar level, however, the effect is analogous to pure compliance with an external task requirement.

Effect of Intention on Performance

The effect of intention on performance is relatively straightforward and is analogous to the effect of behavioral intention on behavior. In our model, however, "intention to perform" and actual performance is spanned by another behavioral indicator--resources expended (see Figure 3.1). Resources include the effort that is expended by the individual. This effort is the behavioral manifestation of "intention to perform"--the composite cognitive factor that summarizes the multiple effects of goals. In addition to actual effort, resources may include cognitive activities such as planning. Although this thesis focuses more attention on the effort expended (as a consequence of intention and antecedent of performance), inclusion of more strategic aspects of output performance in the model lends it a higher degree of generality. Besides, behavioral manifestations may be thought of as consisting of both magnitude and direction components. Finally, a recent goal setting study (Early, Wojnarowski & Prest 1987) has identified strategy development as an intervening variable that may aid in our understanding of the relevant processes.

The rationale for introducing "resources expended" as an additional intervening variable is that the relationship between intention and performance is also subject to certain moderating influences (to be discussed later).

- Proposition 3: Intention to perform in the context of a task directly influences the resources (effort and strategic planning) expended by the individual.
- Proposition 4: Resources actually expended by the individual in the context of a task contributes directly to the level of performance achieved in the task.

The preceding propositions are represented in Figure 3.1 by the links between "Intention to perform," "Actual resources expended," and "Performance."

Figure 3.1 is a schematic summary of all of the four preceding propositions and represents the Extended Compliance Path in its entirety.

Moderating Influences on the Extended Compliance Path

As has been indicated earlier, the level of externally set goal affects performance through multiple and interactive mechanisms. Accordingly, we may expect that there will exist a number of moderating influence on the Extended Compliance Path described in the preceding section and represented in Figure 3.1.

Included among the important moderators of the Extended Compliance Pathway are Goal Specificity, Perceived Extrinsic Rewards, and Expectancy. In this section, the influences of these moderators on the central pathway are elaborated by specifying how these moderators interact with and modify the Extended Compliance Mechanism. Two of the three aforementioned moderators, viz., "extrinsic rewards" and "expectancy," may themselves be contingent upon the externally set goal under special circumstances. Following sections of this chapter address the Extrinsic Reward Pathway and the Goal-Expectancy Pathway in their entireties.

Effect of Goal Specificity

Goal Theory propositions suggest that specific goals are more conducive to generating superior performance in comparison with vague goals. Locke and his associates refer to goals that are described in concrete, quantitative terms as specific goals; while performance goals conveyed to task performers by such advice as "do your best" have been referred to as vague goals (Locke 1968; Locke et al. 1981). Locke's postulates suggest that goals that are both specific and difficult at the same time are more effective than easy or vague goals with regard to the level of performance generated. However, these vague goals (or "do-your-best goals") may often result in higher performance than what can be achieved by moderate or easy externally set goals (Locke, Mento & Katcher 1978).

The effect of "do-your-best" goals relative to specific goals can be best understood in terms of the compliance mechanism and the internal representation of goal. The compliance mechanism suggests that individuals tend to adapt their intended efforts to match their perception of the task goals. It is proposed that recommendations to task performers to "do their best" convey to them the impression that they have some amount of freedom in choosing or shaping the task goal. It is more than likely that the subjects pick up signals regarding the importance of the task in general and the task goal in particular and respond to the overall message rather than interpret the assignment in literal terms. In so far as the semantics and connotations of the phrase "do your best" diverge from its implications when examined word by word, a goal associated with such a description lacks specificity.

The preceding argument reiterates the idea that the internal representation of goal difficulty is contingent upon the information available with regard to the task goal. If the cues associated with the task goal contain conflicting information or unintended messages, then the task performers' encoding of the task will be affected correspondingly. To the person who assigns the task, however, it will appear to be an anomalous case.

Locke's treatment of goal specificity concerned only the difference between difficult, quantitatively-stated performance goals and "do-your-best" goals. As we can see, the notion of specificity (or clarity) may be of importance even beyond this particular issue. For instance, it is a matter of conjecture as to which of the two goal conditions between a very easy, specific goal and the assignment "perform at your minimum level" would actually result in the lower performance. It is likely that the task performers will interpret the phrase "perform at your minimum level" in a similar fashion. They could decipher it as an indication for them to work at a relaxed pace but within some acceptable limits (that they may set for themselves or perceive others to have set for them). It may be hypothesized that in such a situation the task performers will not perform at zero level (the physical minimum possible) which is what the task goal literally connotes.

A practical implication of this observation is that even when goal levels are communicated to subjects in quantitative terms but are in complex forms (e.g., as in such descriptions as "within one standard deviation of the mean of previous trials" or "at the 80 percentile level

or higher") or in broad terms (such as "significant improvement over previous attempts"), it will contribute to an attenuation of the goal setting effect and result in a greater variability of the internal representation of goal among the respondents.

The advantage of describing the task goal in specific terms (over describing it in vague or general terms) roughly corresponds to the superior effect of assigning a task in conjunction with a performance goal relative to assigning it without explicit performance targets. In the first case, the task goal contains more descriptive information that aids in the formation of a more coherent internal representation. In the second case, a more complete cognitive mapping of the task is possible. This is also in accordance with another related aspect of task goals elaborated in the following paragraph.

Task difficulty is believed to influence the amount of attention allocated by the individual (Kahneman 1973). In so far as the tasks described in terms of performance goals are allocated more attention by the task performers (and as long as difficult goals tend to command more attention), task goals or performance targets may be thought of as possessing attention enhancing properties. Enhanced attention, in turn, aids in the individuals' development of the intention to perform and consequent performance.

It stands to reason then, goal specificity may interact with the effect of externally set goal as suggested by the following proposition.

Proposition 5: Goal specificity (or clarity of assigned goal) moderates the relationship between externally set goal level and the internal representation of goal as follows. The effect of externally set goal on its

internal representation is stronger when goal specificity is high than when goal specificity is low.

Figure 3.2 depicts the interaction schematically.

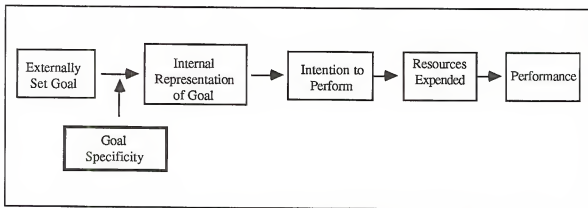


Figure 3.2: The Moderating Effect of Goal Specificity

Effect of Extrinsic Rewards

For the purpose of this model, rewards are defined as consequences of task accomplishment that are evaluated positively (and, consequently, desired) by the task performer. Extrinsic rewards are those which are administered and controlled by an agent external to the individual and are contingent in some manner upon the evaluation of the performance by that (or another external) agent.

Intrinsic rewards, on the other hand, refer to the satisfaction or enjoyment derived from actual participation in the task itself. They are predominantly contingent upon the interaction of the task characteristics and the characteristics of the task performer rather than an external agent.¹

¹The supervisor of a task (as an external agent) does possess some power to alter task characteristics which may indirectly influence

Tasks that have absolutely no extrinsic or intrinsic rewards associated with them are not only rare but can exist only as theoretical abstractions. Usually, some form of extrinsic reward, however subtle, accompanies almost all task assignments. These rewards may not be tangible but will still qualify as extrinsic rewards as long as the recipient is dependent upon another person's evaluation and discretion in order to obtain it. Examples of intangible extrinsic rewards may include social approval, admiration, praise, respect, etc.

By definition, extrinsic rewards are those that are in some way tied to an evaluation of the task performance by an external agent, usually the same person or agent that assigns the task. For tasks that are assigned in terms of performance targets, attempts at realizing external rewards involves responding actively to the assigned goal level. Consequently, extrinsic rewards are likely to boost the effect of the compliance mechanism. The following proposition expresses this idea more formally.

Proposition 6: Perceived extrinsic rewards moderate the compliance mechanism as follows: high levels of perceived extrinsic rewards result in stronger positive effects of internal representation of goal on intention to perform than low levels of extrinsic rewards.

Figure 3.3 is a schematic representation of the moderating effect of perceived extrinsic rewards on the compliance mechanism.

intrinsic rewards. Their administration and control, however, are unlikely to be related to evaluation of performance.

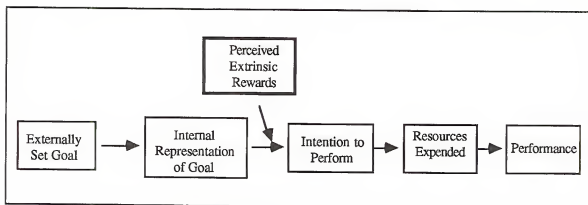


Figure 3.3: The Moderating Effect of Extrinsic Rewards

Figure 3.4 depicts a hypothetical interaction of Internal goal representation and Perceived extrinsic rewards on Intention to perform.

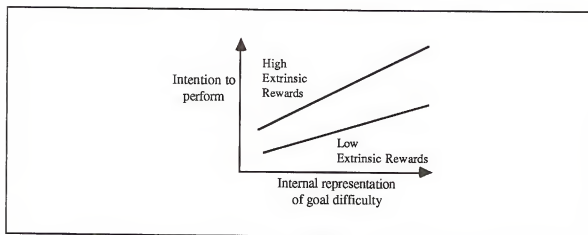


Figure 3.4: An Example of a Hypothetical Interaction Between Internal Goal Representation and Perceived Extrinsic Rewards

An important feature of the preceding interaction is that when external rewards are the only source of rewards, at the same time, the level of perceived external rewards are held at zero, the compliance effect will vanish. That is, in the absence of any reward whatsoever,

the motivation to comply in response to increasing goals will be nonexistent.¹

Similarly, when the externally assigned goal is set at zero, increased perceived extrinsic rewards should not raise intention to perform. The preceding scenario corresponds to a situation in which (increasing) extrinsic rewards are perceived to be conditional upon a zero level of target performance; i.e., the extrinsic rewards are perceived to be free. Since, no performance is requested of the individual in exchange for the external rewards, no intention (for performing a task) will be evoked.

The Extended Compliance Mechanism described earlier and depicted in Figure 3.1 (and embodied in propositions 1 through 4) implicitly assumes a fixed, finite level of perceived extrinsic rewards.

Perception of extrinsic rewards. It requires to be emphasized at this point that it is the perception of extrinsic reward (rather than the actual reward) that matters so far as the preceding moderating influences are concerned. Undoubtedly, the actual external reward level--an operational variable--strongly influences how it will be perceived. Nevertheless, factors such as individual characteristics and message factors (involved in communicating and administering the reward) are likely to interact with (i.e., moderate) this relationship.

¹For the purpose of making a point, it is assumed that in this case there exists no intrinsic rewards either. Also, the threats of punishments (which may be considered to be analogous to negative rewards) for noncompliance are ignored.

For instance, those high in need for achievement (n-Achievement) or need for affiliation (n-Affiliation) are likely to perceive intangible extrinsic rewards (such as praise, admiration, etc.) to be more positively valenced than those who are low in these needs. The rationale for this argument is that the intangible rewards usually cater to the needs associated with the self-system: the higher the need in the self-system, the higher will be its value to the individual. (The economic analogy of higher demand contributing to higher price is evident).

Self-esteem is likely to moderate the perception of intangible (self-related) extrinsic rewards for similar reasons. Those high in self-esteem are likely to have less use or inclination for externally administered positive evaluations of their self-systems.

- Proposition 7: Both individual and reward characteristics moderate how external rewards will be perceived by the task performer (to whom the reward is administered).
- Proposition 7a: The individual's perception (or evaluation) of the externally administered rewards will be moderated by certain individual characteristics as follows:
 (i) intangible extrinsic rewards will tend to be more positively evaluated by those who are high in n-Achievement and n-Affiliation than those who are low in these needs;
 (ii) those high in self-esteem will evaluate intangible extrinsic rewards less positively than those low in self-esteem.
- Proposition 7b: Individual differences (such as differential preferences for different kinds of external tangible rewards) will moderate the perception of external tangible rewards.
- Proposition 7c: Message characteristics (that highlight or underplay the importance of different features of extrinsic rewards) will also moderate the relationship between the externally administered reward (both tangible and intangible) and its perception.

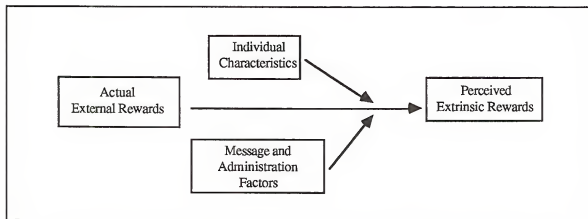


Figure 3.5: Moderating Influences on Perceived Extrinsic Rewards

Effect of Expectancy

Expectancy, the subjective probability of success at a task, has been found to exert a strong impact on individuals' motivation for behavior under a wide array of circumstances. According to Garland (1984), expectancy models predict that, all things being equal, expectancy will positively influence performance. That is, if two task situations are identical in all respects except for the individual's expectancy estimate, then the individual will be motivated to perform at a higher level for the task associated with the higher expectancy. It is proposed that the compliance mechanism (which suggests that task performers tend to match their intended performance levels to their perception of the externally assigned goal) will also be moderated by expectancy in a similar fashion. If the individual perceives his or her chances of succeeding at a task (i.e., achieving the assigned goal) to be high then it may be argued that he/she will be more strongly motivated to comply than when the subjective expectancy estimates are low. In fact, if the expectancy of task success is extremely low (i.e.,

for task goals that are perceived to be near impossible to accomplish), increasing the level of goal difficulty may detract from the individuals motivation to comply.

The preceding argument embodies the assumption that individuals do not comply "mindlessly" for all tasks or all levels of difficulty at routine tasks. They may be expected to comply with assignments only for those tasks and goal levels with which they are familiar and in which they perceive to have acceptably high levels of expectancies. This underlying expectancy (that affects compliance) may have been acquired over repeated exposures to the task situations or may have been deliberately evaluated during the initial exposures to the task. For unfamiliar tasks or for a goal level in a familiar task that is already high, raising the goal level further may detract from the motivation to comply. In such situations, the compliance route is likely to reverse its nature and acquire the property of a "rejection mechanism." That is, when expectancy is low, raising externally set goal levels will not contribute to increased intention to perform, and may even actually lower such intentions.

Proposition 8: Expectancy of task success moderates the influence of internal representation of goal on intention to perform as follows. At high expectancies, higher levels of internal representation of goal contribute positively to intention to perform; while at lower levels that contribution is attenuated. At very low expectancy levels, the internal representation of goal may either have no influence on intended performance or may affect it negatively.

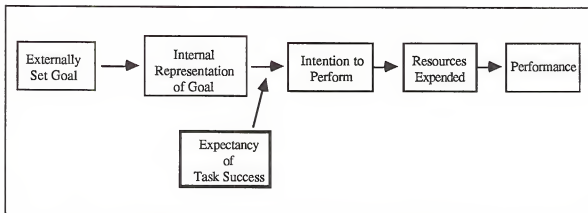


Figure 3.6: Schematic Representation of the Moderating Influence of Expectancy

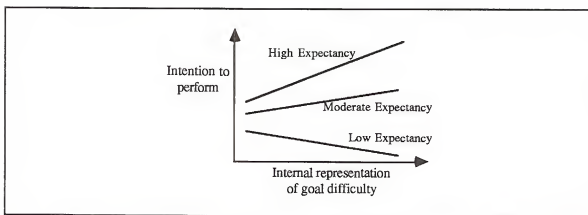


Figure 3.7: An Example of Interaction Between External Goal and Expectancy of Task Success

External Goal Level and Perceived Extrinsic Rewards

A very important characteristic of the salesperson's performance domain is that compensation is often tied to the performance level. Sales and Marketing Management (1986) reports that over 90% of firms selling consumer products and over 85% of firms selling industrial products employ compensation plans that are contingent upon performance in some manner. In such plans, performance levels are rewarded in the

form of higher total compensation packages. Under such circumstances, higher levels of externally set performance goals would undoubtedly contribute to higher "perceived extrinsic rewards." This may be represented schematically in Figure 3.3 by drawing a link between "externally set goal" and "perceived extrinsic rewards."

When the external rewards are designed to increase with the target performance level in this manner, it contributes to an accelerated effect on the goal setting phenomenon. Increasing externally set goal levels in this case not only raises performance through the direct compliance route, higher target performance levels also result in the raising of perceived extrinsic rewards, which further bolster the aforementioned effect. The widespread use of commissions as a motivational tool used by sales managers is consistent with this observation. A fuller exploration of this pathway, however reveals some important considerations and mediating factors that have significant implications for the proper use of this motivational tool.

Types of Contingent Compensation Plans

The actual compensation plan that a firm may decide to employ could be chosen from an infinite number of potential plans, each of which is contingent upon the performance dimensions in a different way. At one end of the range, an organization may choose a compensation plan that involves "straight salary"--a payment scheme in which the compensation is unrelated to sales performance (except in the context of long run evaluation and promotion). At the other extreme, "straight commissions" are those schemes in which compensation is entirely

dependent upon sales performance. In mixed compensation plans, salary refers to the fixed part of the compensation (which is unrelated to short-term sales performance), while commissions refer to the amount earned directly as a result of the sales performance for the term.

In addition to salary and commission, a compensation plan may also consist of a "bonus." While both commission and bonus are dependent upon sales performance, there are some important differences between them. Commissions are paid as an amount that correlates directly with the performance level achieved on some set of measures (e.g., sales volume, dollar sales, or profit margin) on a predetermined basis and are usually administered monthly. A bonus, on the other hand, is a discretionary payment for achieving a level of performance and is usually paid annually. While mixed plans consisting of both salary and commission are more common than both straight salaries and straight commissions, the most common combination plan includes salary, commission, and bonus (Dalrymple 1988, p. 385).

Sales organizations may also offer the salesperson the chance to purchase stock in the company at some future date at a preset price--usually lower than the prevailing market value--in order to retain exceptional salespeople (Anderson, Hair & Bush 1988). Such stock options, often referred to as "golden handcuffs," and similar payment schemes (e.g., "drawing accounts") exemplify the complexity that contingent payment schemes may involve.

The criteria upon which sales performance is evaluated for the purpose of determining performance-contingent compensation may also take one of several forms, some of which are more complex than others. Such

criteria may involve one or more performance dimensions. Among those dimensions that are frequently used as criteria for computing contingent payment, the most common indices include dollar sales, unit sales (or quantity sold), profit margin achieved, number of sales call made, number of new accounts created, number of existing accounts serviced, and so forth. Most often, a combination of more than one of these indices are used with different weights attached to different criteria. In addition, when salespeople are responsible for more than one product line, different products may contribute differentially toward the individual's overall performance index, with a different set of criteria and weights used for each of the products. Again, to complicate matters further, additional differences may be involved across territories, seasons and markets.

The preceding observations serve to justify the proposition that the relationship between target performance levels and perceived extrinsic rewards may be impeded by the difficulty involved in forming an impression of how clearly or strongly external rewards correlate with difficulty of goals. This is an important factor in the context of administration of performance-contingent compensation plans. It suggests that it is more effective to incorporate a reward structure that is perceived to be clearly related to (i.e., contingent upon) target performance rather than introduce complex compensation schemes in which the reward-performance contingencies are actually high, but are not perceived as such. Propositions 9 and 10 summarize these concepts.

Proposition 9: In sales organization settings that incorporate performance-contingent compensation, higher levels of externally set performance targets contribute to

increased perceived extrinsic rewards and contribute toward enhancing the goal setting effect.

- Proposition 10: The characteristics of the compensation plan moderate the relationship between external goal and perceived extrinsic rewards as follows:
- (a) compensation plans involving a higher proportion of commissions (in the mix of commissions, salaries, and bonuses) result in stronger relationship between external goals and perceived extrinsic rewards;
 - (b) complexity of contingent payment schemes attenuate the relation between external goals and perceived extrinsic rewards.

Figure 3.8 schematically depicts the pathway between "external goal level" and "perceived extrinsic rewards" and the moderating effect of the contingency plan upon it.

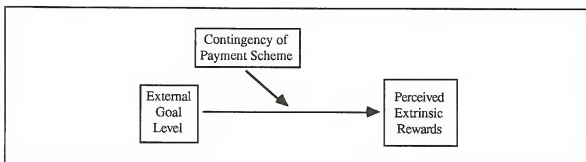


Figure 3.8: The Extrinsic Reward Pathway and the Moderating Effect of Contingent Payment Plan

External Goal and Intangible Extrinsic Rewards

Although the preceding sub-section inquiring into the issues concerning tangible rewards (embodied by financial compensation) addresses a crucial aspect of sales performance and motivation, the effect of intangible rewards on motivation in the sales force cannot be overlooked. In a survey of 121 senior sales executives, overall financial compensation was rated as only the sixth most effective of 17 types of rewards for motivating salespeople (Miller 1979). This study

found "special recognition" for outstanding performance to be the top-ranked motivator and "encouragement and contact of supervisor" to be ranked third.

In sales organizations, such forms of rewards may take various forms ranging from the subtle to the ostentatious and are often referred to as "recognition awards." Examples of these include trophies, wall plaques, bestowal of titles, e.g., "Salesperson of the Month"--a favorite of car dealers and real estate firms, publicity in house organs, congratulations (verbal and written) by senior executives, gifts for spouses of outstanding salespeople, memberships in honoraria such as "Super Salesperson Club," and so forth. Haring & Morris (1968) report that 90% of firms use honor awards and consider their effectiveness in motivating salespeople to range from "good" to "excellent."

The common features that these rewards share with the previously enumerated financial rewards is that they are administered and controlled by the salesperson's supervisors and are contingent upon evaluations of the salesperson's performance.

It is proposed that since high (or effective) levels of sales performance are almost universally desired by all sales supervisors, some form of perceived encouragement--however subtle--is associated with the reaching of high goal levels. Simple acknowledgements by supervisors of the salesperson's success in achieving set quotas may be sufficient for creating that perception. Also, individuals may assume, sometimes even below a conscious level, that high performance and achieving difficult performance goals inexorably portend recognition or praise by co-workers and supervisors.

Proposition 11: High levels of performance targets are direct antecedents of high levels of perceived intangible extrinsic rewards.

Moderating Influences on Intangible Rewards

It has been proposed earlier that administrative factors (associated with the contingent payment scheme) may moderate the effect of external goal on perceived financial rewards. Similarly, administration factors may moderate the relationship between goal level and perceived intangible extrinsic rewards.

Some firms actively pursue a policy of creating an organizational climate that is conducive to providing salespeople with encouragement and support. Several companies firmly believe that their "organizational culture" will contribute toward creating a work environment characterized by a high general level of awareness of the accomplishments of salespeople and other employees. It is believed that such a culture motivates employees to perform more effectively (Kelley 1986; Templeton 1986). In other words, organizational culture is an administrative factor that may have a moderating influence in the context of intangible extrinsic rewards.

Proposition 12: Organizational culture moderates the relationship between external goal and perceived intangible extrinsic rewards as follows. For salespeople in firms with supportive organizational climates, the relationship between performance targets and perceived intangible extrinsic rewards will be stronger than for salespeople in organizations that do not have such climates.

Figure 3.9 is a schematic representation of the moderating effect of organizational culture on perceived extrinsic rewards.

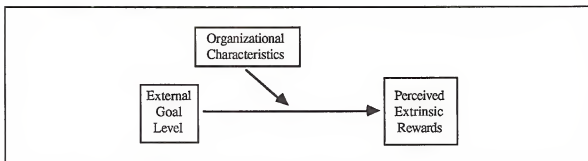


Figure 3.9: The Moderating Effect of Organizational Characteristics on Perceived Extrinsic Rewards

The Goal-Expectancy Pathway

The preceding sub-section and the schematic representation in Figure 3.6 suggest that the external goal level and expectancy of success at the task are independent constructs that may contribute separately toward ultimate performance. While this presentation is useful for the purpose of elucidating the moderating effect of expectancy, the complete role played by the expectancy variable in the proposed model is somewhat more complex.

As discussed in Chapter 2, several studies have recognized that there exists an inverse relationship between the level of external goal and the expectancy of task success. This suggests that the individual task performer recognizes that difficult goals imply that his or her probability of success at the task will be lower.

A careful examination of the preceding implication reveals that individuals must somehow factor in their personal capabilities before they can arrive at estimates of expectancy of task success. For the purpose of our analysis, we may consider an individual's abstract representation of the assigned goal to be the primary antecedent of

his/her interpretation of what the goal level means in personal terms. That is, after the assigned goal has been encoded at the general (and impersonal) level, this encoding is further processed with reference to the task performer's self-system; especially when the individual is confronted with the task.

The higher the level of the internally represented goal, the higher will be the task performer's estimate of difficulty of the goal with regard to personal standards. The personalized estimate of goal difficulty may be represented in terms of how much personal resources (effort and planning) would be demanded by the goal level associated with the task. That is, the "cognitive calibration" of the personalized estimate of goal difficulty occurs in terms of the level of effort and planning that the goal level imputes. Higher requirements of personal resources would then indicate lower expectancies of task success.

The preceding idea embodies the "limited processing capability" view of the individual's cognitive system. If the goal difficulty is increased, then it cannot be functional for the individual to respond in any way other than to associate with it a lowered probability of task success.

- Proposition 13: Increased levels of internal representation of goal contribute to higher levels of the representation of the goal in personal terms, i.e., in terms of the level of personal resources that will be required to accomplish the goal.
- Proposition 14: The relationship between the level of personal resources required and the expectancy of task success is negative: higher estimates of personal resources required contribute to lowered expectancies.

As a subjective estimate of the individual's probability of task success for a given level of goal, expectancy is responsive to information pertaining to objective characteristics of the task and the goal level. The proposition that higher levels of externally set goals contribute to lowered expectancies is consistent with this viewpoint. It is therefore reasonable to expect that the assigner of the task may be able to provide the task performer with other sources of relevant information (in addition to the actual goal level and task) that will also influence expectancies of task success. For instance, independent assessments of the individual's chances of task success (by the assigner of the task or another external agent) may also influence the composite expectancy that is formed by the task performer. The source credibility associated with the supplier of the information, however, should moderate how strongly these external estimates affect the individual's expectancy of task success.

- Proposition 15: Independent external estimates of the individual's probability of success influence the person's (internal) expectancy of task success.
- Proposition 16: The credibility associated with the external source will moderate how strongly the external estimate of probability of success influences expectancy: high source credibility will contribute to stronger influences of independent external estimates (information) on expectancy than low credibility sources.

The preceding propositions (13 through 16) are consistent with the view that expectancy is influenced by objective characteristics of the task and other sources of external information. Additionally, they identify the cognitive processes that intervene in the influence of objective task factors on expectancy.

Figure 3.10 overlays the Goal-Expectancy pathway on the central Extended Compliance pathway. Propositions 13 and 14 are represented by the links between "internal representation of goal difficulty," "estimate of personal resources required," and "expectancy." Proposition 15 is embodied by the link between "independent external estimates" and "expectancy"; and Proposition 16 is schematically depicted by the moderating effect of source credibility.

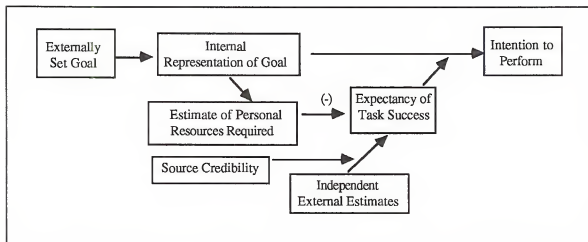


Figure 3.10: The Goal-Expectancy Pathway Overlaid on the Extended Compliance Pathway.

Figure 3.10 also clearly elucidates how increasing levels of externally set goals may affect performance in two opposing ways at the same time. Raising external performance targets normally enhance actual performance through the compliance path. Concurrently, increased goal levels lower expectancies which, in turn, can slow down or even reverse this positive influence. The following sections of this chapter will further examine these contingencies and other pathways involved in the processes.

Nature of the Goal-Expectancy Relationship

Although increasing externally assigned goals have the effect of diminishing expectancies of task success, there is no reason to believe that expectancy decreases proportionally with increasing goal levels. That is, although the relationship is monotonically negative, it may not be linear. In fact, it is likely that the curve depicting the relationship between external goal level and expectancy will consist of some characteristic elbows (or turning points) that will have significant effects on the manner in which expectancy moderates the goal setting effect. The nature of the shape of this curve is described as follows.

To begin to chart the representation under consideration, we begin at the very low end of goal difficulty and examine how expectancy changes in response to increases in goal difficulty. When external goal levels are very low (close to zero perhaps), increases in the level of external goal have little (or negligible) effects on expectancy of success. The downward sloping curve (representing diminishing expectancy in response to increasing external goals) is relatively flat. This is depicted by the segment AB in Figure 3.11 (which describes the shape of the goal-expectancy curve over an extended range).

At these low levels of goals, the task performer is likely to perceive no significant changes in difficulty levels with regard to his/her capabilities as the physical goal level is increased. As an example, a competent athlete would consider the task of jumping over a two feet high bar to be only marginally more difficult, if at all, than jumping over one that is only one foot high. Similarly, a competent

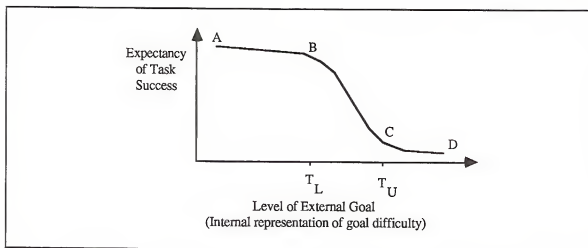


Figure 3.11: The Relationship Between Goal Level and Expectancy of Task Success

salesperson (who realizes several thousand dollars worth of profit through sales each year) would perceive very little difference in task difficulty in the course of confronting an annual sales quota of \$100 and another of \$200.

It is within this "zone of confidence," represented by AB in Figure 3.11, that the effect of increasing goals on compliance will be most marked. Because of the very way in which goals are perceived, the compliance mechanism will work unhindered by lowered expectancies as goals are increased. That is, as goal levels are raised, the direct effect on "intention to perform" will be relatively undisturbed by the marginal decreases in the level of expectancy of task success.

As the physical level of the external goals are raised, the individual will sooner or later cross some threshold level of goal and reach a "zone of uncertainty." At these goal levels, the personal resources required to confront the task are perceived to approach the individual's own maximum resource levels. Raising goals further would

correspond to much sharper drops in expectancy estimates. In this zone, represented by the segment BC in Figure 3.11, the expectancy estimates will be very sensitive to changes in external goal levels. The threshold goal level corresponding to the beginning of the zone of uncertainty is represented by T_L . While this may occur at different levels of external goals for different individuals, it is proposed that the shape of the curve depicts a basic characteristic in the way expectancy estimates will respond to changes in the external goal levels.

Finally, as external goals are raised even further, the task performer will cross the upper threshold T_U and enter another zone of relative certainty, BC. Goal levels in this zone correspond to those that are perceived to be equivalent to the impossible (e.g., jumping over a 30 feet bar, or realizing a profit of hundreds of millions of dollars, etc., in the context of the earlier illustrations).

In the zone of uncertainty, increases in external goals rapidly lower expectancy estimates. Consequently, the effect on performance (through the compliance mechanism) suffers on account of the moderating effect of lowered expectancy. When the expectancy falls below some critical level, the compliance mechanism can be expected to reverse to a "rejection mechanism" and further increases in external goals would be likely to lower intention to perform.

The preceding observations suggest that for a certain range of goal difficulty, particularly those characterized by the zone of confidence, one would observe a monotonic positive relationship between goal difficulty and performance. This is in accordance with the

observations of goal theorists. In this region, as some researchers have proposed, goals will be "accepted" by the task performer. Others merely suggest that "goal acceptance" or "goal commitment" is likely to be high. In any case, empirical results evincing positive monotonic relationships could be accounted for.

Empirical evidence negative monotonic relationships between goal levels and performance are also accommodated by the preceding conceptual organization. Specifically, when the "compliance mechanism" is reversed at extremely low levels of expectancy, such negative effects will be observable.

Finally, the transition from the positive monotonic to the negative monotonic slope (as goal difficulty levels are raised from the very low to the very high) generate an inverted-U shaped curve, evidence for which exists in literature as well.

The theoretical perspective offered here suggests a dynamic interplay between some external variables and intermediate cognitive processes that naturally generate different kinds of goal-performance relationships. In the process, it offers insight into how the apparently conflicting empirical observations can be systematically explained and interpreted in the context of an organized framework. Also, the preceding framework is consistent with Goal Theory and Expectancy Theory postulates.

Earlier attempts at explaining inverted-U curves have referred to Atkinson's Achievement Motivation Model, since it predicts inverted-U-shaped relations between "subjective probability of success" and "tendency to succeed." However, it has typically been positioned as a

rival paradigm positioned as a rival paradigm to both Expectancy Theory and Goal Theory. It requires to be mentioned that, in addition to the inverted-U-shaped curve, Achievement Motivation Theory also predicts flat and U-shaped curves under certain conditions.

The rationale presented in this section purports to be a more complete explanation of the bell-shaped goal-performance relationship than those that invoke the Achievement Motivation theory simply because it includes a similar prediction in a different setting that involves certain specific and restrictive assumptions regarding individual difference variables.

The theoretical perspective of this discourse is not aimed at establishing that the Achievement Motivation Model is invalid or is inconsistent with the existing evidence. It simply suggests that the observed inverted-U-shaped relationships do not automatically "disprove" Goal Theory and Expectancy Theory postulates (and establish a competing viewpoint), but are natural extensions of both. At the same time, they may be in accordance with any number of models that include inverted-U-shaped relationships (between goal and performance) among their predictions.

Proposition 17: The negative relationship between external goal and expectancy of task success is nonlinear. Specifically,
 (a) at low levels of goal difficulty, overall expectancy is high but the decrease in expectancy in response to increase in goal levels is small;
 (b) at very high levels of external goals, overall expectancy is very low and again changes in goal level produce small responses in expectancies; and
 (c) at intermediate levels of external goals, the expectancy level decreases sharply in response to increases in external goals.

- Proposition 18a: At low levels of external goals, the compliance mechanism is predominant: increases in external goal levels contribute to increased intention to perform, actual resources expended, and performance.
- Proposition 18b: At very high levels of external goals, increases in external goal levels affect intention to perform, actual resources expended, and performance negatively.
- Proposition 18c: As externally set goal levels are increased from the very low to the very high, the relation between the goal level and intention to perform (as well as between goal and performance) exhibits an inverted-U-shaped relationship.

The conceptual framework described in this chapter identifies some more pathways involved in the effect of goals on performance. These pathways shed additional light on why different kinds of goal-performance curves may be generated under differing circumstances and are examined in the following sections.

The Moderating Effect of Self-Efficacy

The preceding section enumerates processes involved in the influence of external sources of information on the expectancy variable. However, there may also exist influences upon expectancy which originate from within the individual's cognitive system. Earlier studies have proposed that self-esteem and other measures of the individual's own appraisal of the self influence expectancy (see Chapter 2 for a fuller description).

In this section, it is proposed that self-efficacy has an important and significant moderating effect on the formation of expectancy. Since self-efficacy refers to the individual's sense of mastery in the given task domain, those who are low in self-efficacy are likely to perceive their personal chances of success at a given task

task differently than those high in self-efficacy. Self-efficacy, however, is not proposed to influence the formation of the abstract cognitive (or internal) goal representation, since that encoding is believed to occur before self-related cognitions are generated.

On the other hand, the effect of the abstract "internal representation of goal" on the "estimate of personal resources required" invokes the individual's evaluation of personal standards and appraisal of personal resources available in light of the task goal as perceived by the individual. It is this relationship that is moderated by self-efficacy. This moderated effect is also reflected in the resultant level of expectancy. Eventually, self-efficacy affects "intention to expend effort" as well as performance through its enhancing effect on expectancy. Figure 3.12 depicts the preceding interactions schematically.

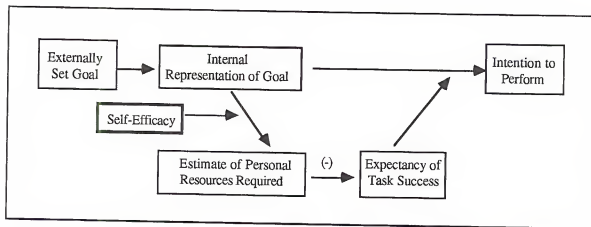


Figure 3.12: Moderating Effect of Self-Efficacy on Estimate of Personal Resources Required

Proposition 19: Self-efficacy moderates the effect of "internal representation of goal" on "estimated personal resources required" (and consequently on expectancy) as follows:

(a) for individuals high in self-efficacy, increased levels of internal representation of goal contribute to smaller increases in estimated personal resources necessary than individuals low in self-efficacy; and (b) for individuals high in self-efficacy, increased levels of internal representation of goal contribute to smaller decreases in expectancy than individuals low in self-efficacy.

The Intrinsic Motivation Pathway

In the process of attempting to account for the goal setting effect, several studies have espoused the notion that difficult task goals are perceived as more "challenging" by the task performer than easy goals. This perception of challenge is believed to energize the task performer toward higher levels of performance. In this section of the chapter, issues that are of significance to the underlying cognitive processes implicated by this idea are examined and the contingencies associated with them are explored.

The Concept of Intrinsic Rewards

One of the distinctive features of the "challenge" (that the individual task performer is believed to perceive in difficult goals) is that it is a reward--a desirable consequence of undertaking the task performance--which is not administered or controlled by an external agent. There may exist other such desirable (or positively valenced) feeling states associated with difficult goal levels, such as satisfaction, enjoyment, fun, etc., all of which are internally generated and contingent upon the the individual's participation in the task. These rewards--generated internally by an interaction of the task

performer and the task itself--may be classified as intrinsic rewards and are consistent with the definition stated earlier.

Since intrinsic rewards are not administered by an external agent, it is possible to view them as features or characteristics of the task itself. For instance, it is not uncommon to describe an activity as a "challenging task" or as "satisfying work." The fact that the challenge or the satisfaction at the task depends in part upon the person involved in the activity indicates that it is more useful and less confusing to treat intrinsic rewards as separate from task features. Nevertheless, it requires to be mentioned at this point that this concept involves some amount of difficulty and, to the task performer, intrinsic rewards may often appear to be phenomenologically indistinguishable from the activity itself.

Another important point in this context is that tasks or task goals may also contribute to negative intrinsic rewards depending on the individual characteristics of the task performer. This concept will be explored further and integrated with the overall intrinsic motivation pathway in a following section.

The Rationale for Externally Administered Rewards

The value of externally mediated rewards have been recognized in psychological and management literature for quite some time. Taylor (1911) recognized the effectiveness of piece-rate payments and wage incentives in his treatise on the "scientific management principle." Behaviorists such as Thorndike (1932) viewed behavior as something that could be evoked or shaped with the help of external reinforcements. The

theoretical assumption underlying such outlooks of motivation is the individual will have an avoidance orientation with regard to task-relevant behavior. It is believed that the function of external rewards is to create a source of attraction for the task performer whose positive valence (i.e., desirability) will outweigh the disinclination associated with the task performance. The residual valence (the positive valence of reward minus the negative valence of undertaking task activity) would constitute the resultant motivating force for the action. This implied or underlying assumption regarding work motivation and extrinsic rewards is evident even in contemporary term for financial payments, viz., compensation. Salaries, commissions, bonuses, and other payments are considered to be means for "compensating" a loss or a sacrifice borne by salespersons and other organizational employees.

Relatively modern theories of work motivation (e.g., the Expectancy-Valence theory) also incorporate in part this assumption regarding work motivation.¹ Expectancy-Valence theory is partly based upon the implicit assumption that rewards (payments, reinforcements, etc.) are positively valenced while expenditure of effort at a task is negatively valenced.

Mitchell (1974) observes that Vroom's (1964) Expectancy Theory postulates are designed to address the valences and motivational effects of externally administered rewards, not intrinsic rewards, although many

¹Actually, a large number of similar models of the expected utility form (Tolman, Lewin, Edwards, Atkinson, Rotter, Vroom, Peak, Rosenberg, Dulany, and Fishbein) share this basic premise at some level or another.

researchers have overlooked this. He also indicates that Expectancy Theory may be seen as based upon some sort of principle of maximization of expected pleasure under the constraints of positive valences of rewards and the disutility of effort.

A closer examination of the concept of disutility of effort suggests that this disutility (or disinclination) associated with a given level of personal effort is actually a sub-set of the category comprising of negative intrinsic rewards. In other words, the class of motivation theories based upon the principle of subjective expected utility maintain the viewpoint that individuals associate high levels of anticipated personal effort as intrinsically less satisfying. That is, with all other factors remaining the same, higher effort levels should contribute to lowered intrinsic rewards (which by definition is inclusive of the effects of disutility).

Limitations of the Expected Utility Viewpoint

In his model, Vroom does not address the issue of intrinsic rewards. However, he was aware of the possibility of their effects as is evident in his conjecture that "people may seek to do well in their job even though no externally mediated rewards are believed to be at stake" (Vroom 1964, p. 16). In fact, Locke's notion (that higher goal levels contribute to a heightened sense of "challenge") cannot be properly examined unless one explores the possibility that higher anticipated effort levels may contribute to increased intrinsic interest

The intrinsic reward orientation may operate within or without the context of externally set goals. Pittman, Emery & Boggiano suggest that

when an individual adopts an intrinsic motivational orientation, features such as novelty, complexity, challenge, and the opportunity for mastery experiences are sought and preferred. These qualities are usually present in some form during enjoyable play, entertainment, or leisure time periods. [1982, p. 790]

Research dealing with these issues have recognized that there may often exist situations in which individual task performers will value (i.e., evaluate positively) increased effort at a task, simply because the activity itself is a source of pleasure.

Relation Between External Goal and Intrinsic Rewards

In cases when increased anticipated effort contributes to a higher level of dissatisfaction (the expected utility formulation), as well as when higher levels of effort are valued positively, it is the anticipated levels of personal resources (effort) that directly influence intrinsic rewards.

In an earlier section, it was proposed that increasing externally set goals contribute to to higher levels of internal representation of the goal, which in turn raises estimates of anticipated personal resources associated with the task. This estimate of personal resources necessary influence intrinsic rewards either positively or negatively depending upon a proposed moderating factor, as described in the following paragraphs.

Intrinsic rewards have been found to be associated with tasks in which the individual perceives to possess (or is made to believe that he or she possesses) competence and mastery (Deci 1971; Pittman, Emery & Boggiano 1982; Pittman, Davey, Alafat, Wetherill & Kramer 1980). Thus, in a specific task domain in which an individual possesses heightened self-efficacy, higher external goals are likely to contribute to

increased intrinsic rewards. This happens because the individual evaluates complexity and effort positively in task domains in which he or she perceives to be personally competent. In case of individuals with low self-efficacy, increasing externally set goals will contribute to increased estimates of personal effort which is negatively evaluated. Therefore, higher levels of external goals will detract from intrinsic rewards (i.e., contribute negatively to intrinsic rewards) for those low in self-efficacy.

Finally, intrinsic rewards--evident in individuals with high self-efficacy--may be further enhanced by controlling some key aspects of the task environment. Usually, individuals respond positively to task situations where the potential for immediate positive feedback is high. Actual feedback, if positive in nature and delivered promptly, aid in enhancing self-efficacy in the long run. However, increased intrinsic interest is achieved merely if the task performer perceives that there exist opportunities for obtaining prompt feedback regarding the worth or effectiveness of the effort expended.

As an illustration, consider the increased interest one may have in approaching a test (or a game of skill or any such activity) if one is informed that the results would be immediately reported, in comparison with a similar activity where the results are to be made available after a month.

Proposition 20: Estimates of personal resources required at a task influence the intrinsic rewards associated with it and is moderated by self-efficacy as follows:
 (a) for individuals high in self-efficacy, high levels of estimated personal resources required contribute to increased intrinsic rewards;

(b) for those low in self-efficacy, increased levels of estimated personal resources detract from intrinsic rewards.

Proposition 21: Tasks that are so designed that they provide quicker feedback with regard to performance are conducive toward generating a stronger and more positive relationship between "estimated personal resources required" and "intrinsic rewards."

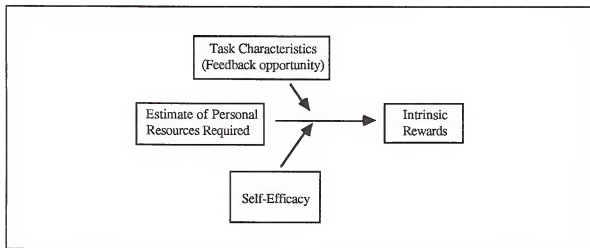


Figure 3.13: Moderating Effects on the Relationship Between Anticipated Personal Resources and Intrinsic Rewards

Effect of Intrinsic Rewards on Performance

Similar to extrinsic rewards, higher levels of intrinsic rewards contribute to increased "intention to perform." However, in one respect, there exists a significant difference in the way that effect occurs. Previous propositions suggest that extrinsic rewards and expectancy of task success combine interactively to enhance the compliance mechanism. Their effects may be thought of as combining multiplicatively, so that if the level of expectancy is zero, their combined effect is zero as well. In such a case, no amount of extrinsic rewards should motivate a person to undertake a goal level that he/she is absolutely certain fail in. Similarly, if we consider a task

situation in which the extrinsic rewards are zero, even certainty of success would fail to motivate a person to undertake that activity, since no incentives exist.¹

In contrast, intrinsic reward contribute additively toward intention to perform. They generate internal incentives for approaching and persisting at a task, sometimes even when an externally set goal has been surpassed. Everyday examples include intrinsically motivated individuals whose satisfaction with their work propel them to continue working for longer than that which is considered necessary or sufficient.²

Proposition 21: When an externally set goal level is within reach, individuals motivated by intrinsic rewards may continue to perform at the task even when the externally goal level has been met. In absence of intrinsic rewards, individuals will either just meet the target performance or abandon the task earlier.

Figure 3.14 overlays the intrinsic motivation pathway on others. The output from intrinsic rewards is shown to contribute directly to "intention to perform," suggesting the additive effect of intrinsic rewards. In order to maintain clarity, the figure does not include the "extrinsic reward pathway."

¹In this case, it must also be assumed that no intrinsic rewards operate either.

²This example merely helps to illustrate the point. It is possible that an individual may undertake similar activities in anticipation of intangible external rewards such as recognition or similar bestowals.

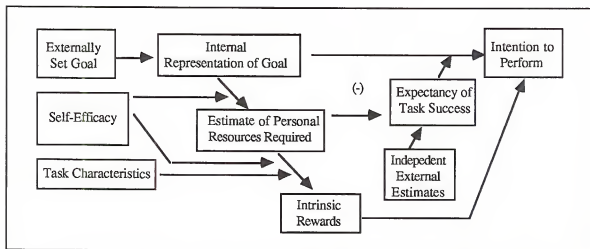


Figure 3.14: The Intrinsic Reward Pathway Overlaid on Other Pathways

The Composite Effect of Self-Efficacy

Figure 3.14 identifies self-efficacy as an important moderating variable on account of its influence on intention to perform through at least two different pathways. Higher levels of self-efficacy serve to enhance expectancy of task success (which bolsters the compliance mechanism) as well as increasing intrinsic rewards that add to the level of intention to perform.

It may be proposed that individuals below a certain threshold level of efficacy are likely to respond negatively to increased levels of externally set goals and actually lower intention to perform when confronted with increasing target performance levels. This is because the increase in externally set goal levels would not only lower expectancy level below the critical but contribute to negative intrinsic rewards (or increased "disutility"). This is similar in nature to the idea of the reversal of the "compliance mechanism" described earlier. On the other hand, individuals with high self-efficacies may be expected

to respond positively to increases in goal levels in accordance with the familiar goal setting effect.

- Proposition 22: The self-efficacy of the individual task performer interacts with the level of externally set goal as follows:
- (a) individuals who are high in self-efficacy respond to increased levels of externally set goals by raising their intention to perform (and consequently achieve high performance levels);
 - (b) individuals low in self-efficacy may have lowered levels of intention to perform when confronted with increased levels of externally set goals; and consequently their performances are likely to suffer as well.

This interactive effect of self-efficacy and externally set goal is considered significant for a number of reasons. First, it may help to account for the anomalies in existing empirical evidence and explain both the positively-sloped and the negatively-sloped goal-performance curves that have been reported in literature. Secondly, both goal level and self-efficacy are easily identifiable and measurable variables. While the external goal level is a direct exogenous variable and can be manipulated at various levels without much difficulty, individual's self-efficacies may also be influenced through "training programs" and educative measures in which the perceived mastery in the task domain of interest is gradually built up. Thus, from a theoretical as well as a practical standpoint, this interaction is of crucial importance in the conceptual model.

The Static Model--Summary and Implications

Each of the preceding sections of this chapter addresses a part of the overall conceptual framework that identifies the different cognitive mechanisms involved in the effect of the level of externally set goal on

performance. This conceptual model is referred to as the Static Model since it examines how and why the goal setting effect is generated without taking into explicit consideration the possible dynamic interactions among some of the moderating variables when external goals are assigned repeatedly over a period of time. The following section of this chapter inquires into some of the issues relevant to the dynamic effects of goal setting.

In sum, the static conceptual framework suggests that the level of externally set goals influence performance through several interactive mechanisms, since the increase in external goal level affects a number of related cognitive dimensions. First, an individual usually responds adaptively to an increased level of an external goal merely in order to comply with the task requirements. This compliance in turn is influenced by the perception of increased extrinsic rewards, which are signalled by higher goal levels themselves. Higher goal levels also contribute to lowered expectancies which again serve to dampen compliance. However, for those individuals who are high in self-efficacy, this negative influence of the increase in goal level takes place at a slower rate than those low in self-efficacy. Finally, increased goal levels may contribute to or detract from intrinsic rewards depending upon the characteristics of the task and the individuals' self-efficacy level. High levels of intrinsic rewards contribute additively (i.e., independently and separately) to the individual's intention to perform at a higher level. This model identifies a number of interactive cognitive variables that intervene in the goal setting effect and also enumerate the relevant

exogenous variables that are of significance in the context of administration and control. Figure 3.15 depicts the several interactive pathways. The exogenous and controllable variables which are identified as important moderators in the process are highlighted in the figure (and are shown as enclosed in rectangles with bold borders). An important cognitive variable identified in this framework is self-efficacy. It is proposed that self-efficacy is a concept of considerable significance and is likely to contribute in our understanding of the issues surrounding goal setting.

Dynamic Aspects of Goal Setting

The conceptual framework dealing with static issues (i.e., those which do not take into account the effects of repetition and feedback) identify a number of variables that are of importance in the goal setting process. Included among those is self-efficacy which is proposed to interact with the level of externally set goal to generate some significant effects. In other words, externally set goals and self-efficacy were treated as orthogonal independent variables in the conceptual model. In theoretical treatments of the repeated effects of goal setting, however, it is possible to observe that the manner in which external goals are scheduled may influence self-efficacy and ultimately influence the performance level that can be achieved.

Proximal and Distal Goals

Bandura & Schunk (1981) defined "goal proximity" as that property of goal that indicates how close (i.e., near or "proximal") the deadline

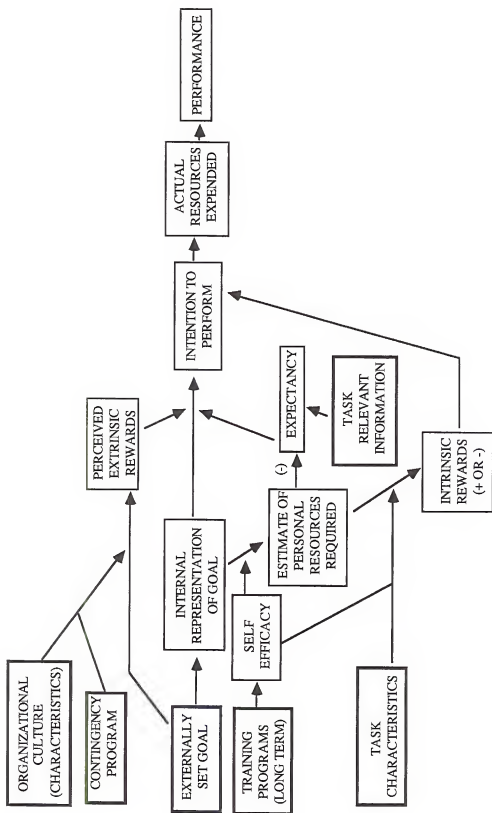


Figure 3.15: The Overall Static Model

for achieving the target performance level is to the individual task performer. For instance, a target performance level that must be achieved in a month's time may be considered more proximal than an annual quota for a salesperson. However, this goal is also more "distal" (i.e., further removed in time) than a weekly quota.

According to these authors, goal proximity "is especially critical the more closely referential standards are related to ongoing behavior, the greater the likelihood that self-influences will be actuated during the process" (Bandura & Schunk 1981, p. 586). Bandura & Simon (1977) and Jeffery (1977) also provide some indication that the impact of goals on behavior may be determined by how far into the future the goals are projected.

Based on these considerations, these researchers indicate that the goal setting phenomenon can be made even more effective if distal goals are replaced by proximal sub-goals. For instance, an annual sales quota of \$120,000 worth of profits may be replaced by monthly quotas of \$10,000 on an average.¹ Such proximal sub-goals are believed to enhance performance on account of their influence on self-efficacies and intrinsic interest. The authors also suggest that

proximal sub-goals can . . . serve as an important vehicle in the development of self-percepts of efficacy. . . . By contrast, distal goals are too far removed in time to provide sufficiently clear markers of progress along the way to ensure a growing sense of self-efficacy" (Bandura & Schunk 1981, p. 587).

¹Different months may be apportioned different quota levels in consideration of seasonalities, if any.

In an experimental setting, these researchers found evidence for the superior effect of proximal sub-goals on performance. Additionally, the perceived self-efficacy generated by the use of proximal sub-goals was found to be positively related to intrinsic interest in the task.

Although the aforementioned study experimentally tested the effectiveness of proximal sub-goals under conditions of self-directed learning (in which the goals were self-set in accordance with the experimenter's "suggestions"), the theoretical ramifications have implications for task situations in which performance goals are externally set.

Dual Effects of Proximal Goals

The preceding study is consistent with the static conceptual model described earlier. In that model, it is suggested that self-efficacy influences performance through its enhancing effect on expectancy which in turn raise intention to perform. Self-efficacy is also believed to raise intrinsic rewards which contribute to intention to perform as well.

The conceptual model, however, sheds light on another effect that externally set goals may have. It was mentioned earlier that external goals have attention enhancing properties. The attention enhancement associated with externally set sub-goals that are repeatedly assigned aids in maintaining a stronger internal representation of the goal over the entire period for which the target performance is assigned. External goals that are assigned in task situations in which they may signal extrinsic rewards (as in the salespersons' work domain) will also

bring with them these properties even when they are administered as sub-goals.

The static models thus lends an additional important justification for the results observed in the study by Bandura & Schunk (1981). This theoretical observation would not have been important if the repeated attention enhancing properties of sub-goals and its positive effect on self-efficacy contributed to "intention to perform" (and performance) in the same way under all circumstances. The following scenario illustrates how these two factors may have differential contributions on performance.

If each (or most) of the proximal sub-goals are associated with failure experiences (because of either the task characteristics, goal level or individual characteristics), repeated failures will contribute to a reduction in (i.e., lowering of) self-efficacy levels instead of enhancement. In such a case, a distal goal would not have as strong an effect in terms of self-efficacy as proximal sub-goals and should appear as a relatively more effective tool compared to proximal sub-goals. However, the proximal sub-goals will continue to benefit from the repeated exposures to the attention enhancement properties even in failure situations. It is proposed that under such conditions, proximal sub-goals may remain more (or less) effective than distal goals depending on which of the two effects are greater.

Proximal sub-goals are usually associated with multiple feedbacks regarding performance levels achieved (either administered deliberately by external agents or derived directly from observation of task results by the individual task performer). Each time a sub-goal is set, the

individual has access to information regarding success or failure (usually success), which contributes toward developing self-efficacy. That is, while proximal sub-goals provide repeated attention enhancement as well as feedback opportunities, a distal goal provides neither.

Implications

As is evident, the knowledge of the nature of the effect of proximal sub-goals (obtainable by using the experimental design suggested in the preceding sub-section) have important ramifications for the design of quota schedules. For instance, quotas are perhaps best scheduled on a proximal basis, in general. However, if the salesperson's initial career or a specific territory involves some setbacks or failures, a distal quota (such as an annual goal with corresponding appraisals) may be helpful. Additionally, sub-quotas for periods of smaller duration may be provided for the purpose of "reminding" the individual, without administering the usually accompanying negative feedbacks.

For tasks that are relatively easy (i.e., successes are most likely) the relatively lower administrative costs of setting long term quotas (over short term quotas) may be preferred; but motivation and performance may be enhanced by providing feedbacks about successful achievements at regular intervals.

For tasks in the range of moderate difficulty, associated with equal chances of success or failure (i.e., tasks associated with "challenge") proximal sub-goals in their pure form would be recommended

as it would bolster self-efficacy after initial successes as well as allowing for the benefits of repeated attention enhancement.

CHAPTER 4

METHODOLOGY

This chapter describes the methodology used for testing a number of hypotheses in order to corroborate some of the key propositions outlined in the preceding chapter. It also provides evidence in support of the validity of the scale developed specifically for measuring self-efficacy in the context of negotiation tasks. This scale has been used to measure self-efficacy so that the hypotheses (concerning externally set performance goals and measured self-efficacy) could be tested within the context of an experiment which involves a negotiation task setting.

The conceptual model and the theoretical propositions described in the previous chapter address broad issues whose relevance is not limited merely to the sales force. Some parts of the model, however, have dealt with concerns that are significant only within a sales force context. The experimental setting described in this chapter, on the other hand, is adapted to closely match the environment of sales activities so that measures of performance, goals, and other variables that are especially characteristic of sales situations may be included.

Figure 4.1 depicts the reduced model which incorporates essentially those elements which will be tested in order to provide empirical support for some of the key constructs and relationships

outlined in the previous chapter. Thus the reduced model embodies only the critical constructs of the overall static model (Figure 3.15) and identifies the interrelationships that are of significant interest from a theoretical standpoint.

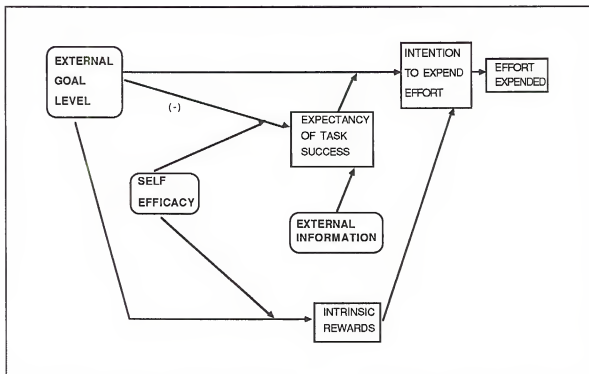


Figure 4.1: The Reduced Model

Essentially, the reduced model identifies three important independent variables: the level of externally set goal, the self-efficacy of the individual performing the task, and external information regarding the task that is provided to the task performer. The two intervening variables of primary importance are "expectancy" and "intrinsic interest." The dependent variable of crucial theoretical interest is "effort expended" by the task performer.

The reduced model indicates that the effort expended in the context of a sales related task is primarily dependent upon the target performance level (i.e., the level of externally set goal). Represented schematically by the horizontal pathway between "external goal level" and "intention to expend effort," this proposed relationship embodies the "compliance relationship" explained in detail in the preceding chapter. The expectancy of task success is inversely related to the level of externally set goal and moderates the compliance pathway. Additionally, the goal-expectancy relationship is moderated by self-efficacy. Self-efficacy also moderates the impact of the level of the externally set goal on effort expended via the intrinsic reward pathway. External information regarding the task, particularly that which pertains to the level of difficulty, is also proposed to be a determinant of the expectancy of task success.

In forthcoming sections of this chapter which deal with experimental design and development of hypotheses, the theoretical propositions embodied by the reduced model are represented in terms of operational hypotheses within the context of the task chosen for the study.

The following section introduces the general experimental paradigm selected and provides a rationale for the choice. Later sections describe the study in detail and enumerate the experimental hypotheses within the context of the task selected for the study. These experimental hypotheses are merely operational transcriptions of key theoretical propositions delineated earlier, and represent them in the setting of an experiment.

The Experimental Paradigm

The Task Setting

The performance domain of salespeople that is of interest in this study is one that is characterized by target performance levels or sales quotas (that are typically assigned in accordance with overall sales forecasts), competitive performance domains (often involving negotiations with regard to the terms of sale), and certain amounts of uncertainty regarding clients' interests, power and ability.

In view of the aforementioned considerations, the performance task selected for the experimental setting involves a bargaining scenario.¹ It is in the context of this bargaining task that the performance targets are assigned. The actual performance level achieved (and other dependent, independent, and intervening variables) are also measured within the context of the same task.

Advantages of a Microcomputer Based Experimental Methodology

As a part of the experimental procedure, the subjects are each assigned the role of an industrial salesperson representing a specific company that has a select set of clients to whom the salesperson may sell the product. The salesperson is assigned the task of negotiating

¹Although negotiated terms of sale are more prevalent in the work domain of salespeople, research indicates that some important consumer transactions are also associated with bargaining as well (Johnston & Bonoma 1983). Pennington (1968) identifies shopping in automobile showrooms and flea markets, durable goods shopping, and in-home transactions as consumer activities that are typically accompanied by bargaining behavior.

the terms of the sale with the buyers. The roles of the buyers are handled by a simulation program on a microcomputer. Effective negotiation (involving persistent and motivated bargaining) will be reflected in the terms of sale finally settled upon by the salesperson (subject) and the buyers (represented by a computer program).

This laboratory setting permits strict control over key independent variables to be manipulated in the experiment and allows for efficient measurement of relevant dependent and intervening variables. It thus facilitates in the making of a stronger statement regarding causality.

Since the performance task selected involves bargaining between salespeople and buyers, this study shares some common concerns and features with other studies on negotiation in organizational buying and channels behavior (e.g., Clopton 1984; McAlister, Bazerman & Fader 1986; Neslin & Greenhalgh 1983; Schurr & Ozanne 1985; Stern, Sternthal & Craig 1973). Previous studies on buyer-seller relationships have made some important recommendations regarding how the inquiry into these and other related issues should be conducted. For instance, conceptual models of the selling process identify the buyer-seller dyadic interaction as one that involves several complexities and espouse the use of experimental settings rather than using static survey methods (Spiro, Perrault & Reynolds 1977; Weitz 1979, 1981). Additionally, Clopton & Barksdale (1987) make another key suggestion. They indicate that earlier experimental studies (e.g., Komorita & Barnes 1961) typically relied on "paper and pencil" methodologies involving role playing by both the parties in the bargaining activity. They observe that most of these

studies that incorporate a two-party role playing format but actually inquire into the behavior of only one of the two parties (either the buyer or the seller) do not allow for the precise controlling of the opponents' behavior. In studies in which this control is important, actions and behavior of the opponents will confound the experimental factors.

Clopton & Barksdale (1987) argue that negotiation studies that predominantly inquire into the behavior of one of the parties involved in the dyad may benefit substantially through the use of a microcomputer based methodology. A microcomputer based study (e.g., Clopton 1984; Schurr & Ozanne 1985) uses a format in which subjects assume the role of one of the two parties involved in the negotiation and negotiate with a microcomputer programmed as the other party. This method allows greater control of opponents' behavior and less confounding with relevant factors, thus providing the study with more power and internal validity. Clopton (1983) suggests that the method offers additional advantages, such as simplifying the administration of the experiment, quicker responses, availability of more time for actual negotiation, efficient collection of data, and accurate measurement of time-based measures (e.g., time elapsed between responses). Also, the subjects rate microcomputer simulations as more realistic and interesting.¹

¹Brucks (1988) advocates the use of a microcomputer based methodology in settings involving consumers' acquisition of information for similar reasons.

In keeping with the aforementioned recommendations, the experimental procedure adopted in this study requires the subject to negotiate with a programmed microcomputer which assumes the role of the buyers. The computer program that is used to handle the role of the buyers is a contingent program. That is, it takes into account the offers made by the salesperson in the process of arriving at the counteroffers. The programming language used for the purpose is Prolog. Clopton & Barksdale (1987) espouse the viewpoint that an expert system programming language such as Prolog should be considered particularly suitable for the purpose of achieving both realism and control in contingent programs.

The computer program written for the negotiating session is one that may incorporate any of several bargaining strategies and is equipped to negotiate on multiple terms of sale (e.g., price, delivery time, and so forth). The particular bargaining strategy of the buyer (i.e., the computer program) that is to be employed and the choice of the number of dimensions for the negotiation (i.e., the separate aspects or terms of sale that must be settled upon) are contingent upon considerations of the experimental conditions and objectives. For the purpose of this experimental study, the only dimension utilized was price. In the context of testing the postulates of a study related to Goal Theory, a task situation comprising of a single performance dimension is not only adequate but may be of more value than one that incorporates several dimensions. This is especially true in light of the fact that multiple dimensions may confound the results because of effects which, while being relevant in the general context of

information processing of individuals, may not be pertinent in the context of the conceptual model being addressed here.

The subjects' task consists of negotiating the terms of sale for a fictitious office equipment on behalf of the organization that which the salesperson is assigned to represent. The subjects are initially introduced to their roles and informed about the details of the bargaining scenario through written instructions as well as through a set of preliminary messages on the screen of the microcomputer used for the procedures. In addition to the enactment of the role of the buyer, the computer program also handles the collection and storing of background data on the subjects as well as their responses to questions and probes that are used for the purpose of obtaining measures. The subject responds to prompts, instructions, and questions appearing on the screen of the computer by typing on a keyboard.

The process of negotiation begins with an opening offer made by the programmed buyer, which then prompts the subject to either accept that offer or make a counteroffer. In the context of this particular example, each offer consists of a sale price (in dollars). As a contingent program, the buyers' responses take into consideration the offers, counteroffers, and responses of the subjects. The series of offers and counteroffers continue until either the programmed buyer or the subject accepts the terms and conditions of sale (in this case, only the price) offered by the other.

The contingent (i.e., interactive) nature of the computer program offers certain valuable advantages in the context of the bargaining scenario used for the experimental paradigm. In contrast with a non-

contingent program, it is almost impossible to "outwit" the contingent program by repeating the same offers consistently, making either miniscule or ridiculously large concessions in the course of negotiation, or employing similar tactics that a non-contingent program may not be equipped to handle. Since a contingent program is also very realistic, the subjects tend to respond more appropriately and possibilities of artificial behavior on their part--a serious threat to rigid and mechanistic non-contingent programs--are minimized.

A very important objective of this study comprises of measuring the motivational effects of certain key factors on intention to perform and subsequent contribution toward enhanced performance. In keeping with that objective, the contingent program used for the buyers' responses is designed to be sensitive to the expenditure of effort and persistence on part of the subjects in general. The different levels of performance that subjects may achieve in the negotiation games will simply reflect differential levels of effort that subjects will have put in rather than any significant differences in skill or training.

The Self-Efficacy Scale for Negotiation Tasks

Since the concept of self-efficacy is domain-specific, one needs to develop scales that are also domain-specific for the purpose of assessing self-efficacy (Bandura 1984).¹ Consequently, a 20-item scale for measuring self-efficacy in the context of negotiation activities was

¹Refer to the section entitled "Self-Efficacy and Expectancy: Measurement Issues," in Chapter 2 for details.

constructed (see Appendix A for a list of the items included in this scale).

The construct validity of this self-efficacy measure may be supported by demonstrating predictable relationships with measures that are already well-established. As mentioned in Chapter 2, the nomological net to which the self-efficacy construct belongs should include personality measures such as global self-esteem, as well as constructs that are more focussed, viz., locus of control.

The particular instruments selected for the purpose of testing for construct validity include Rosenberg's (1965) 10-item Self-Esteem scale¹ (see Appendix B for a list of items), and two sub-scales from the Sphere of Control scale (Paulhus 1983), viz., the "Personal Efficacy" and the "Interpersonal Control" sub-scales. The Sphere of Control (SOC) scale is both a refinement of and a development upon Rotter's (1966) scale for measuring "Locus of Control." According to Paulhus,

the individual vies for control in the nonsocial environment in situations of personal achievement, for example solving crossword puzzles, building bookcases, or climbing mountains. Perceived control in this sphere may be termed personal efficacy. Second, the individual interacts with others in dyads and group situations, for example defending his or her interests at meetings, attempting to develop social relationships, or maintaining harmony in the family. In this sphere, the appropriate label seems to be interpersonal control. [1983, p. 1254]

¹Silbert and Tippet (1965) report that the scale correlated 0.56 to 0.83 with other similar measures. Rosenberg (1965) provides substantial evidence for the predictive validity of the scale.

Appendix C lists the intercorrelations of the SOC scales with miscellaneous personality scales as reported by Paulhus (1983).¹

The conceptual model proposed in this dissertation suggests that self-efficacy is determined to some extent by the global self-esteem of the individual in addition to the task related mastery experiences in the past. Therefore, the measures self-efficacy in the specific task-domain may be expected to be correlated to generalized self-esteem and sphere of control sub-scales.

For the purpose of assessing convergent validity, the intercorrelations of the self-efficacy scale with the other relevant scales were obtained from two different samples of subjects. Both the samples consisted of students enrolled in an undergraduate business course. Additionally, one of the two samples was comprised of subjects who took part in the negotiation based experiment that was adopted for testing the hypotheses, while the other was used as a hold out sample. The Cronbach's alpha measures for each of the scales and the interscale correlations in the experimental as well as the hold out samples are reported in Tables 4.1 and 4.2.

¹The third component of Paulhus' SOC scale, "Sociopolitical Control," refers to the individual's perceived control in the sphere involving conflicts of personal goals with those of the political and social system. This component is not relevant in the context of the specific task that is of interest to this study.

Table 4.1: Intercorrelations of the Self-Efficacy Scales with Other Relevant Scales in the Hold Out Sample

Scale	1	2	3	4	5
1. Self-Efficacy (20 items)	(.92)	.45	.55	.59	.41
2. Personal Efficacy (10 items) [1st sub-scale of Paulhus' SOC]		(.45)	.44	.76	.48
3. Interpersonal control (10 items) [2nd sub-scale of SOC]			(.75)	.92	.51
4. SOC (all 20 items)				(.74)	.58
5. Self-Esteem (10 items) [Rosenberg]					(.87)

Note: 1) The scale reliabilities appear in parentheses.

2) n=136.

3) All correlations are significant at the 0.0001 level.

Table 4.2: Intercorrelations of the Self-Efficacy Scales with Other Relevant Scales in the Experimental Sample

Scale	1	2	3	4	5
1. Self-Efficacy (20 items)	(.92)	.24**	.42	.42	.27*
2. Personal Efficacy (10 items) [1st sub-scale of Paulhus' SOC]		(.64)	.31*	.76	.49
3. Interpersonal control (10 items) [2nd sub-scale of SOC]			(.74)	.85	.51
4. SOC (all 20 items)				(.75)	.62
5. Self-Esteem (10 items) [Rosenberg]					(.84)

Note: 1) The scale reliabilities appear in parentheses.

2) n=112.

3) * significant at the 0.005 level;

** significant at the 0.05 level;

all others are significant at the 0.0001 level.

Study

Objective

This study is designed to test specific experimental hypotheses concerning the static aspects involved in the effect of quota setting on motivation and performance of salespeople.

Subjects

The subjects in the experimental study were undergraduate business students. Since the theoretical propositions in the model presented in this dissertation focus on the basic motivational constructs and issues, this sample should exhibit the same general pattern of results as would be found in a sample consisting of salespeople.¹

Experimental Design

The three independent variables that are of primary importance in this study are (1) the level of the externally set goal--a 5-level factor, manipulated between subjects; (2) the level of self-efficacy--a between subjects measure; and (3) external information regarding probability of task success--a 2-level factor, manipulated within subjects.

For the purpose of avoiding some key confounds, two more independent variables were considered for the design. The first of these is required to counterbalance the two treatment levels of the within subjects factor, external information. The external information

¹An appropriate follow-up for this experimental study would involve a separate field study utilizing a survey-based methodology.

treatment consists of indicating to the subjects that their probabilities of succeeding are high in one of two successive tasks and low in the other. The counterbalancing scheme involves the introduction of the factor, Order (of external information treatments) that will consist of two levels. One level is associated with providing the subjects with the information that their probability of success is high in the first task and low in the second, the other level involves informing the subjects of the two kinds of probability estimates in the reverse order. That is, Order is manipulated between subjects and consists of two levels: "easy first" (or E) and "hard first" (or H).

The other independent variable taken into consideration is important in the context of assessing the stability of the self-efficacy measure. This factor, the time of administration of the self-efficacy measure, consists of two levels. For half of the subjects, the instrument for measuring self-efficacy was administered before the subjects participated in any bargaining activities; for the remaining half, self-efficacy was measured after the subjects had participated in the first of the two bargaining sessions in which they were assigned goals. The time of administration of the self-efficacy measure thus constitutes a factor that is manipulated between subjects (and consists of the two levels: before and after).

The two treatment conditions of external information, a within subjects factor, was administered to all subjects (although for half of the subjects, it was administered in one order, and for the remaining half in the reverse order).

The dependent variables include "intention to perform," and actual "performance," while the intervening measures will include "expectancy of task success," and "intrinsic interest."¹

Experimental Hypotheses

The reduced model (Figure 4.1) may be used to generate experimental hypotheses that are specific to the context of the negotiation scenario chosen for the experimental task.

In accordance with the general proposition that individuals higher in self-efficacy respond more positively to externally assigned goals, the following hypothesis may be tested in the context of the task.

H1: Salespersons who are high in self-efficacy will expend more effort on the negotiation task than those that are low in self-efficacy.

The expenditure of effort may be assayed through measures of the total number of counteroffers made and the total amount of time spent on making the counteroffers by the salesperson. Since the experimental task was designed such that higher levels of performance reflect greater amounts of effort expended at the task, the actual performance levels achieved in the negotiations may also be considered to be additional measures of effort expenditure.

The following hypothesis proposes an interactive effect of externally set goal and self-efficacy on effort expended. In particular, it suggests that although externally set goals have been shown to influence effort expenditure in previous studies, an important aspect of this

¹Other auxiliary measures will include self-esteem, level of self-set goals, etc.

effect is that the goal-effort relationship is stronger for those that are high in self-efficacy.

H2: As the level of the externally set goal is increased, salespeople who are high in self-efficacy will exhibit greater increases in effort expenditure than those who are low in self-efficacy.

The theoretical model described in detail in Chapter 3 proposes an inverted-U shaped relationship between the independent variable (level of externally set goal) and relevant dependent measures, such as expenditure of effort and intention to expend effort. The following hypothesis reflects the same idea in the context of the experimental setting.

H3: The values of the dependent measures for effort expended (such as total number of rounds of negotiation, total time spent on negotiations, etc.) will reach their maximum levels corresponding to an intermediate goal level (i.e., corresponding to any one of the goal levels 2, 3, or 4 out of the total of five goal levels assigned in the experimental study).

The reduced model (see Figure 4.1) also suggests that expectancy of task success is not only dependent on the level of externally assigned goal, but is also influenced by the self-efficacy of the individual performing the task. In fact, the interactive effect of self-efficacy and the externally assigned goal occur partially through the intervening variable--expectancy of task success. Therefore, it is important to test for the existence of the proposed relationship between self-efficacy of the individual at negotiation tasks in general and the expectancy of task success associated with a specific goal level for the particular negotiation task chosen for this study.

H4: Within each of the five levels of the externally assigned goals, salespeople who are high in self-efficacy will have higher levels of expectancy of task success than those who are low in self-efficacy.

In addition to the determinants of expectancy listed in the paragraph preceding hypothesis 4, expectancy of task success may also be influenced by external information about probability of task success (see Figure 4.1). The rationale for this conceptualization is that individuals may be expected to arrive at expectancy estimates for a given task after considering not only the goal level assigned to them, but also any other external cues regarding the level of difficulty of the task that may be made available to them. To the extent additional information (regarding the level of difficulty) from sources external to the individual is made available to the salesperson, they are likely to be incorporated in the expectancy estimate that the salesperson will arrive at. The composite expectancy estimate thus formed (in response to influences from the multiple sources) will in turn affect the effort expended at the assigned task. The following two hypotheses summarize this proposition.

H5: When salespeople are assigned the task of negotiating consecutively with two identical purchase representatives, but are informed that one of the two is a difficult negotiator (and that the other is easy), their expectancies of task success will be lower corresponding to the representative that they have been made to believe is difficult in comparison with the expectancies corresponding to the other (purportedly easy) client.

The preceding effect will remain unchanged by the order in which the salespeople expect to encounter the clients with the "hard" and "easy" labels. That is, so far as the impact of the external information (viz., the labelling manipulation) on expectancy is concerned, it will not matter whether the first client (or the second) is labelled "hard" (or "easy"), as long as the two clients are given one each of the two labels.

- H6: Other conditions remaining the same, higher levels of expectancy of task success will contribute to increases in intention to perform as well as actual effort expended.

Finally, the reduced model (Figure 4.1) identifies the intrinsic reward pathway, which suggests that self-efficacy moderates the level of intrinsic rewards that individuals will associate with a given goal level. Additionally, the reduced model also suggests that higher levels of intrinsic interest in the task enhance intention to perform and expenditure of effort.

- H7: For salespeople who are high in self-efficacy, higher levels of externally set goals will contribute to increased intrinsic interest in the task than those low in self-efficacy.

- H8: Intrinsic rewards will contribute positively to intention to perform and effort expended.

Procedure

Table 4.3 provides a general overview of the sequences involved in the experimental procedure associated with the experimental study. The following paragraphs explain these sequences in detail, and describe the manipulation of the independent factors, the procedures for obtaining the dependent measures, and other methodological details.

Step 1. At the outset, all subjects are provided with a set of introductory messages in a brochure that describe the experimental setting as a part of an ongoing effort to build a sophisticated, expert bargaining system. Before the subjects are given any further information regarding the task, each subject is administered a paper and pencil questionnaire to collect an initial set of data including a demographic profile (age, sex, education, prior work experience, etc.). Measures of Self-esteem (see Appendix B for details), and Sphere of

Table 4.3: Overview of the Procedural Sequences in Experimental Study

<u>Step #</u>	<u>Details of the sequence</u>
1	<ul style="list-style-type: none"> - Administration of preliminary instructions and cover story. - Collection of initial set of data (age, sex, education, etc.). - Collection of paper and pencil measures of <u>self-esteem</u>, and <u>sphere of control</u> sub-scales. - For subjects in the "Before" condition of the factor <u>Time of self-efficacy measurement</u>, the instrument for measuring self-efficacy is also administered.
2	<ul style="list-style-type: none"> - Introductory messages presented to the subjects on the computer. - Participation in negotiations with the first client (Banner). - Collection of the following measures: Expectancy, Intrinsic interest, Total number of Rounds of negotiation, Total Time spent in negotiations, and Final Offer agreed upon.
3	<ul style="list-style-type: none"> - Administration of the <u>Goal Level</u> treatment--one of the 5 different target sales price is assigned to the subject for each of the two successive clients. - Administration of the <u>External Information</u> treatment and the <u>Order</u> (of external information) treatment--half of the subjects (those in the H condition of Order) are advised that the first of the next two clients (AmTech) is a difficult negotiating opponent and that the second client (Consol) is an easy opponent, the other half of the subjects (in the E condition) are told that the first client (AmTech) is easy to negotiate with, and that the second (Consol) is a difficult customer. - Collection of the following measures: Expectancy, and Intrinsic interest for each of the two subsequent negotiations.
4	<ul style="list-style-type: none"> - Participation in negotiations with AmTech. - Collection of measures for the following dependent variables: Total number of Rounds of negotiation, Total Time spent in negotiations, and Final Offer agreed upon.
5	<ul style="list-style-type: none"> - For subjects in the "after" condition of the factor <u>Time of self-efficacy measurement</u> the instrument for measuring self-efficacy is administered. Those in the "before" condition skip this step.
6	<ul style="list-style-type: none"> - Before participating in negotiations with the final client (Consol), some key intervening variables in the context of that task are measured once again to assess the effect, if any, of the first negotiation.
7	<ul style="list-style-type: none"> - Participation in negotiations with the last client (Consol). - Collection of measures for the following dependent variables: Total number of Rounds of negotiation, Total Time spent in negotiations, and Final Offer agreed upon.
8	<ul style="list-style-type: none"> - Debriefing of the subjects.

Control (Paulhus 1983) are also collected. For half of the subjects, those in the "before" condition of the factor Time of measurement of self-efficacy, the instrument for measuring self-efficacy, consisting of 20 items (see Appendix A), is administered at this point using a 7-point Likert format scale.

Next, the subjects are provided with information regarding the role of the salesperson that they are expected to assume, the details of the organization that they are supposed to represent, and the product whose terms of sale they are assigned to negotiate. In particular, the subjects are informed that they will be required to negotiate and settle on the selling price of the product with each of three different purchasing representatives from separate organizations. They are also informed that their negotiations will be conducted via the computer terminal. They will receive offers and messages from their clients on the computer screen, while they in turn may transmit their messages and counteroffers by typing on the computer's keyboard.

Each subject is informed that the scenario involved in negotiating via the computer terminal requires the subject to assume the role of a salesperson employed by IMC--a large company engaged in the business of manufacturing and selling document processing equipment. The particular product whose price the subject (salesperson) would have to negotiate is known as a "Jaeger." The manufacturing cost of a Jaeger is \$15,000. It represents a product that incorporates a number of technological breakthroughs and the installation of which requires requires a high degree of customization. Because of the recency of the introduction of the product and also because the product's configuration is so different

from those of equipment used thus far, the Jaeger does not have any standard or reference price yet. IMC has chosen to rely on its sales department to develop a pricing scheme on a case by case basis, that would enable sales managers and their sales teams to obtain as much revenue as possible. In the document processing field, it is quite common to price a product which incorporates new technology at a much higher level than its manufacturing cost.

IMC's clients have different characteristics, but most of them have some amount of interest in upgrading the document processing facilities that they currently use in their offices. The purchase representatives of the clients may be expected to possess different bargaining styles and have unequal amounts of negotiating experience. The subject is advised of the fact that he/she could be made aware of matters concerning a particular client's bargaining style before negotiations with that client begins, provided such information is available to the subject's superiors at IMC. All clients have been thoroughly informed about the product's characteristics through different kinds of marketing communication efforts undertaken earlier. At this time, a settlement of the product's price is the only critical aspect of the selling process that has not been completed. This settlement will be done through negotiations between IMC's salespersons and the clients' purchase representatives.

Before the subjects proceed to the next stage of the experimental task, each subject is given an outline of the sequence of events which he/she may expect to encounter when the interactions with the computer begins. Also, instructions regarding the details of carrying on negoti-

ations via the computer terminal are also given to the subjects before the start of the actual negotiations.

Initially, the subject will be greeted with a welcome message on the computer screen and be prompted to enter his/her identification number (provided by the experimenter) on the keyboard. The computer program will respond with a number of message screens that reiterate some of the key aspects of the negotiating scenario. Next, the computer screen will bring a message from the salesperson's immediate superior--a regional sales manager at IMC. The sales manager will assign a specific client and a particular sales quota for that client to the subject. When the sales manager's instructions have been given to the subject, the individual subject may expect to receive a message from the first client so that negotiations on the price of the product may commence. After the completion of the negotiation session with the client, the subject will once again hear from the sales manager for instructions regarding subsequent tasks.

The salesperson's interactions with the client's purchase representative will begin with a message from the representative appearing on the computer's screen. The purchase representative will introduce himself/herself and then begin the negotiation by making an opening offer (in terms of a dollar figure) for the product. The subject will have the option of either accepting that offer or making a counteroffer or, as a third alternative, typing a message on the computer's keyboard in response to the client's message and offer. This message may be typed by the subject at the time he/she makes counteroffer.

Under normal circumstances, the subject (enacting the role of a salesperson) would be expected to make a counteroffer for the selling price at a level that is much higher than the client's initial offer. In response to the subject's offer, the client may be expected to transmit a message on the subject's computer screen in order to explain whether or not he/she agrees to that counteroffer. In case the purchase representative decides to reject the initial counteroffer, as is most likely in the initial stages of the negotiation process, he will make a revised (possibly higher) offer for the amount at which they would like to buy the product. However, if the subject makes an extraordinarily low initial counteroffer, the purchase representative of the client may be willing to accept it as well. Ordinarily, both the parties involved in the negotiation are likely to trade offers and counteroffers a number of times before any one of the two negotiators eventually decide to accept the offer made by the other.

The subject is informed that the messages which he/she has the option of typing for the client to read do not actually reach the purchase representative while the negotiations are in progress. On account of technical limitations, the subject's comments and messages are recorded in a "message center"--a storage device which the purchase representative may play back after the negotiation session. At that time, the purchase representative would be able to read the entire script consisting of the dialog between the two negotiating parties in the sequence in which it had occurred. Also, the sales manager at IMC is empowered to obtain a copy of a recorded session at his/her discretion in order to evaluate any particular salesperson. Although the

messages do not reach the client while the negotiations are in progress, the subject is urged to record a message or enter a comment whenever he/she considers one appropriate so that either of the two negotiating parties may have the opportunity of examining and learning from a given negotiation experience after it is over.

This scenario concerning the unavailability of the on-line messages by the purchase representative is introduced on account of the fact that the computer program (which handles the interactions with the subject) is incapable of interpreting and responding to verbal messages. The program, however, is capable of reading the counteroffers made by the subject in numerical terms and can even adapt itself in response to the pattern of concessions being offered by the subject. Since the program is not interactive in so far as verbal messages are concerned, this scenario is introduced so that interactions with the subjects at a semantic level may be avoided. The messages that are transmitted by the programmed client are actually chosen by the computer program from a message bank corresponding to the particular client involved in negotiations at any time. Each client will have his/her own message bank which effectively constitutes the range of vocabulary that the programmed client possesses. The program's decision regarding the choice of the message to be transmitted by the client is based on the computation of the client's counteroffer and concession pattern and is meant to be consistent with its own actions. That is, the messages

transmitted by the purchase representative are generally meant to be comments that accompany its own offers.¹

Thus far, all the instructions that are imparted to the subjects, the collection of the measures, etc., are done using a paper and pencil format. All the instructions and questionnaires, etc., are presented in one brochure.

Step 2. After the completion of the preceding step, the subjects are instructed (at the end of the brochure given to them in Step 1) to read the opening message on the computer screen. At this point, the subjects may read the opening message, type in the identification numbers provided by the experimenter, follow the instructions that appear on the computer screen, press the appropriate keys on the keyboard, and be guided through the rest of the experiment by the interactive computer program.

In the opening stages of the subject's interaction with the computer program, the subjects are first led through a series of messages that summarize the important aspects of the process of negotiation, and the details of the role assigned to them are reiterated.

Next the subject is informed that their subsequent instructions will come from the sales manager, i.e., the immediate superior of the salesperson whose role the subject has assumed.

The messages from the sales manager are associated with a different set of colors on the computer's screen from what had been used

¹Refer to Appendix G for a sample of the types of messages included in a typical client's message bank.

thus far. Each time the identity of the individual (interacting with the subject) changes, the colors and other screen configurations change accordingly. However, the same individual is consistently associated with the same configuration whether or not that person interacts with the subject at one stretch or sends messages to him from time to time.

After a brief set of introductory messages, the sales manager informs the subject that purchase representative with whom the salesperson will be negotiating shortly is from an organization known as Banner Industries. The sales manager also assigns the subject a sales quota equal to \$18,000. The quota assigned for the first negotiation session with Banner is the same for all subjects.

The negotiation session with Banner is intended to serve two purposes. First, it provides a vehicle for the subjects to become familiar with the use of the computer terminal for the purpose of negotiating. Second, the uniform target performance level assigned to all subjects is intended to serve as a baseline or frame of reference, in the context of which the goals to be assigned for the subsequent negotiations may be perceived and evaluated. In other words, five different groups of subjects will be assigned different goals for the subsequent negotiations, all of which will be greater than the baseline goal (the \$18,000 quota assigned for Banner), but the amounts by which they will exceed the baseline goal will vary. Thus, it will be the differing amounts of increases in the target performance levels that will constitute the five treatment levels of the factor Externally Set Goal Level.

At the end of his instructions, the sales manager announces that he will be transferring his end of the computer terminal briefly to the personnel of the Human Resources Department of IMC (the salesperson's and the sales manager's own organization). The Human Resources (or HR) department routinely administers a short, confidential questionnaire to all new employees for their first few job assignments. After the interactions with the HR department have been completed, the subject may expect to be connected directly to the purchase representative from Banner.

The colors of the computer's screen change once again to a new configuration that uniquely identifies the HR department. Next, the HR department will introduce itself and reiterate the point that the confidentiality of the responses to the subsequent questions will be strictly maintained and not even the sales manager will have access to those responses. The survey is administered merely for the purpose of assessing the characteristics of the assigned task and not the task performer. In actuality, this scheme is introduced for the purpose of measuring the following constructs: subjective difficulty of goal, expectancy of task success, likelihood of achieving the quota, the confidence rating associated with the expectancy and likelihood estimates, intrinsic interest in the task for the quota assigned, and intention to expend effort (see Appendix D for further information regarding the instruments used for measuring the preceding constructs). After the measures have been collected, the HR department informs the subject that they may next expect to hear from Banner.

The bargaining session with the purchase representative from Banner begins with introductory messages and an opening offer from the client. Once again, the session with Banner employs colors and configurations for the computer's screen that uniquely identify this particular client. The subject has the option to accept Banner's offer or make a counteroffer. The Banner representative evaluates the subject's counteroffer and makes a revised offer that reflects a small but positive concession on part of Banner. The exchange of offers and counteroffers continue until either the computer program representing the Banner purchasing agent or the subject accepts the opponent's offer. (Appendix E describes the algorithm used for the bargaining procedure in detail).

The dependent measures collected by the computer program in the course of the negotiation sessions include the total number of offers made by the subjects, the total amount of time spent in the bargaining session, the total number of characters typed by the subject (in the form of messages directed to the client), and the actual sale price at which the negotiation concludes.

Step 3. At the point of conclusion of the bargaining session with the representative from Banner, the subject is informed that the subsequent instructions will originate from the sales manager. The colors on the screen of the computer are switched back to those associated with the manager at this point.

The sales manager's message congratulates the subject for having completed the preceding negotiation and informs him/her that the next task will consist of similar negotiations, first with the purchasing

representative from Amalgamated Technologies (AmTech), and thereafter with a purchase representative from Consolidated Machineries (Consol).

At this stage of the experiment, the externally set goal level treatment is administered. The subject is randomly assigned to one of the five different goal level conditions selected for the experiment. In particular, the subject is advised by the sales manager that he/she is being assigned a specific sales quota for each of the two subsequent negotiations. That is, the assigned quota is the selling price which the subject is expected to realize (i.e., settle on after negotiation) for each of the two clients. The actual dollar values of the sales quota assigned for the different levels of the goal level treatment are listed in Table 4.4.

Table 4.4: Dollar Values of Sales Quotas Corresponding to Different Levels of the Factor Externally Set Goals

<u>Level of Goal</u>	<u>Dollar Value of Sales Quota</u>
1	\$20,000
2	\$25,000
3	\$35,000
4	\$55,000
5	\$75,000

The manipulation External Information and Order (of external information) are also simultaneously administered at this point. External information is a within subject factor and its manipulation

consists of imparting to the subjects either the information that AmTech (the first of the next two clients) is a hard bargainer and Consol (the last client) is easy, or, alternatively, the information that AmTech is the easy bargainer and that Consol is hard. In effect, these two subgroups of subjects comprise the two levels of the between subject factor, Order (of external information).

The subjects in the "Hard first" (or H) condition of the factor Order (of external information) are informed that AmTech, the first client (of the two subsequent negotiation trials) and is a hard bargainer, and that Consol, the final client, is an easy buyer to negotiate with. Those in the "Easy first" (or E) condition of the factor Order are told that the first client, AmTech, is the easier client and that Consol, the final client, is the tough bargainer.

In reality, the computer program that represents one does not differ from the other except in superficial details, such as style of presentation of offers, the colors (and graphics) on the screen, etc. The actual algorithms that are used for the negotiations are exactly identical (see Appendix E for details of the algorithm). This scheme permits the manipulation of the within subjects factor External Information as well as the counterbalancing of the treatment levels via the use of the factor, Order.

Next, the subject is once again ostensibly linked via the computer terminal with personnel from the HR department who are purportedly collecting information for evaluating the characteristics of the task. The questionnaire administered to the subject is used for the purpose of measuring the following intervening constructs in the context of the

negotiation sessions with AmTech and Consol: subjective difficulty of goal, expectancy of task success, likelihood of achieving the quota, the confidence rating associated with the expectancy and likelihood estimates, intrinsic interest in the task for the quota assigned, and intention to expend effort. The instruments used for collecting these measures are similar to the ones used for measuring the same variables corresponding to the negotiation with Banner. Appendix D lists the scales and items that were used for the collection of the measures in the context of the negotiation with AmTech. The procedure for collecting measures corresponding to the negotiation with Consol were identical to the one used for AmTech.

Step 4. This step consists of having the subjects negotiate with the computer program that now represents the purchasing agent from AmTech. This task generates the following dependent measures that are also recorded by the computer program.

Expenditure of effort is assayed by observing the total number of counteroffers made. Indications of persistence (expenditure of effort and cognitive resources) are also obtained from the examination of response times of the subjects. The total time spent per negotiation and the number of counteroffers made are considered to be convergent measures of expenditure of effort. The initial offer (i.e., the starting point of the negotiation) is also a reflection of the level of performance that the subject intends to achieve. As an auxiliary measure of the intention to perform the subjects' internal (i.e., self-set) goal is also measured. Performance is measured by actual profit levels achieved in the process of arriving at a settlement.

Step 5. For subjects in the "after" condition of the factor, Time of measurement of self-efficacy, the instrument for measuring self-efficacy is administered.¹ Since this factor is orthogonal to the other independent variables that were manipulated, it can be of aid in analyzing whether the self-efficacies of subjects change on account of the negotiation experiences they encounter in the preceding steps. In particular, if this factor--Time of measurement of self-efficacy--does not affect self-efficacies measured across the sample, one may conclude that the short-run bargaining experiences provided in the preceding steps do not alter self-efficacies of subjects. That would be in accordance with the concept of the construct which is envisaged to be relatively enduring in nature, at least so far as short term experiences are concerned. The argument may be further strengthened if the interaction of the factors Time of measuring self-efficacy and External Information do not affect self-efficacies of subjects across the sample.

Step 6. This step merely consists of measuring one of the key intervening variables viz., expectancy of task success, in the context of the negotiation with Consol, the final client. The motivation for this is similar to the one in the preceding step. The difference between the expectancy measures (with regard to the negotiations with Consol) that are collected before and after the experience of bargaining with AmTech may provide information about the relative stabilities of the constructs Expectancy and Self-efficacy.

¹Those in the "before" condition had their self-efficacies measured in Step 1 and consequently they skip this step.

Step 7. Finally, the subject negotiates with the computer program that represents the purchasing agent from Consol. As mentioned earlier, the actual algorithm used for negotiating by the computer program is the same as the one used for AmTech. The only differences are those that involve superficial aspects such as presentation styles, etc. The relevant dependent measures in the context of this final negotiation session are collected.

Step 8. The subjects are finally asked to rate the entire experiment on realism, interest and are subsequently debriefed.

Summary

Several theoretical concerns dictate the use of an experimental setting for testing specific hypotheses generated from the conceptual model. A performance task involving a bargaining scenario, in which the subjects negotiate the terms of sale with buyers (represented by a programmed microcomputer), is considered appropriate for the experiment.

Independent variables consist of level of externally set goal, (i.e., target performance levels in terms of negotiation outcomes); self-efficacy (a between subjects measure); and external information (involving assessments of the participant's probability of task success). Dependent measures include actual performance levels (the final sale price agreed upon through negotiations), intention to perform, and actual effort expended. Expectancy of task success and intrinsic rewards are included among variables that comprise of the intervening measures.

CHAPTER 5

ANALYSES AND RESULTS

In this chapter, the results of data analyses are reported and the implications of the observed results are discussed. The first of the three main sections of this chapter focuses on the self-efficacy measure. In particular, this section attempts to provide evidence in support of the validity and stability of the self-efficacy measure in addition to what was provided in the preceding chapter. The second section of this chapter is a detailed report of important results from analyses of data undertaken for the purpose of testing the experimental hypotheses.

Analyses of the Self-Efficacy Measure

Stability of Self-Efficacy

According to the theoretical model outlined in Chapter 3, self-efficacy for negotiation tasks is a relatively enduring measure that should not change in response to the subject being presented with a few tasks with varying levels of goal difficulty. That is, self-efficacies of individuals are considered to remain stable over the short run. Expectancy measures, on the other hand, are expected to change every time the goal level associated with the task changes, provided all other

factors are held constant. In fact, this is considered to be one of the major distinctions between the self-efficacy and expectancy measures.

In the experimental study described in Chapter 4, self-efficacies of participants were measured with a scale that was constructed specifically for that purpose. Expectancy of task success was measured by having the subjects report their subjective probabilities of being able to achieve the assigned goals. The subjects were asked to indicate a number from 0 (zero) through 100 (one hundred) corresponding to their probability estimates (in percentage terms) of their being able to reach the assigned target performance level. As a convergent measure of expectancy, the subjects also rated the likelihood of task success on a 7-point Likert format scale, with the phrases "extremely likely" and "extremely unlikely" anchoring its two ends.

As mentioned in Chapter 4, the self-efficacy scale used on the experimental sample was found to have a Cronbach's alpha reliability measure of 0.92. To ascertain whether the self-efficacy measure was sensitive to the treatment conditions of external information (as well as of the level of assigned goal), the factor time of measurement of the self-efficacy measure was introduced. Those in the before condition of this factor had their self-efficacies measured before they were administered the goal level treatment (i.e., before any negotiation tasks). Those in the after condition of this factor had their self-efficacies measured after the first of the two bargaining sessions which consisted of the assigned goals (i.e., after the second negotiation session or the one in which the client was AmTech). Also, this factor was orthogonal to the other factors that were manipulated and the

assignment of subjects to the two treatment conditions of this factor was random. An ANOVA analyses with self-efficacy as the dependent variable and time of measurement of self-efficacy as the predictor variable should therefore yield non-significant results. A significant difference in self-efficacies across conditions of the factor time of measurement of self-efficacy would not be supportive of the proposition that the self-efficacies of the subjects had remained stable during the course of the experiment.

In order to make a stronger statement about the stability of the self-efficacy measure, however, the ANOVA model should also include the factors Goal level and Order of external information and their interactions with the time of measurement of self-efficacy factor among the independent variables. This is necessary to demonstrate that there does not exist differential attenuations of self-efficacies when the self-efficacies of subjects in high goal level conditions are compared between before and after conditions of time of measurement on one hand, versus when the same self-efficacies are compared for subjects in low goal level conditions on the other. Such a differential would involve a significant effect of the interaction of goal level and time of measurement of self-efficacy on self-efficacy in the ANOVA model. Also, since time of measurement of self-efficacy is orthogonal to the factor Order of external information, half of the subjects in the after condition of time of measurement of self-efficacy had their self-efficacies measured after the purportedly hard bargainer, while the remaining half of the subjects in the after condition had self-efficacies measured after what they were made to believe was the easy

negotiation. Thus, there may exist a possibility of differential attenuation of self-efficacies if we consider these two groups as well. In this case, the interactive effect of time of measurement of self-efficacy and order on self-efficacy in the ANOVA model has to be significant for that to be true.

The ANOVA model consisting of Self-Efficacy as the dependent variable and each of the three factors--Time of measurement of self-efficacy, Goal level, and Order, along with the three 2-way interactions of these three independent variables was run. Neither the model nor any of the individual type III sums of squares were significant. Also, Bonferroni T-tests for the variable self-efficacy, done separately for each of the three independent variables, did not yield any significant difference across any pair of treatment conditions of any of the three factors. Consequently, the self-efficacy measure may be considered to be unconfounded with other manipulated factors and may be regarded as a stable, trait-like measure, at least so far as this experimental study is concerned. Additionally, the factor Time of measurement of self-efficacy may be eliminated from considerations in subsequent analyses.

Effects of Self-Efficacy

In the first of the three negotiation sessions (in which the subjects negotiated the selling price with Banner), all subjects were assigned the same goal or target performance level as well as the same bargaining task situation. In the context of the first negotiation session, results of data analyses indicate that subjects who were high

in self-efficacy were significantly different (from those who were low in self-efficacy) in terms of the following characteristics:¹

- 1) they reported higher expectancies of task success, when expectancy was measured as a subjective probability (EXPEC-PROB) or as a likelihood estimate (EXPEC-LIKE);
- 2) they reported being more confident (CONFID) with regard to their own probability and likelihood estimates;
- 3) they rated the performance goals (i.e., the assigned sales quotas) as less difficult (DIFFICULT);
- 4) they spent more time in the negotiation process (TOTAL TIME), participated in more rounds of bargaining (ROUNDS), and concluded their negotiations at higher prices (LAST OFFER).

Self-efficacy, however, failed to predict intrinsic interest in the context of achieving the assigned quota levels (INTRINSIC) as well as the intention to expend effort (INTENT) at the 0.05 level of significance.

The preceding results were obtained from GLM analyses of the experimental data with self-efficacy as the predictor variable and each of the aforementioned criterion variables in separate models. Table 5.1 summarizes the results of these analyses and includes the parameter estimates of the the predictor variable self-efficacy from each of the models.

¹The terms in upper case letters and enclosed within parentheses denote the corresponding dependent variables as indicated in the summarized report in Table 5.1.

Table 5.1: Effect of Self-Efficacy on Other Variables

Criterion variable	Parameter estimate of Self-Efficacy	T for H0: Parameter=0	Significance Level	Std. error of parameter
EXPEC-PROB	4.35	2.42	0.0171	1.796
EXPEC-LIKE	0.335	3.68	0.0004	0.091
CONFID	0.267	2.83	0.0056	0.095
DIFFICULT	-0.279	-2.18	0.0311	0.128
TOTAL TIME	83.206	2.22	0.0284	37.450
ROUNDS	6.027	2.01	0.0474	3.005
LAST OFFER	313.459	1.99	0.0491	157.514
INTRINSIC	0.088	0.84	0.4023	0.104
INTENT	0.073	0.78	0.4397	0.094

Tests of Hypotheses

The hypotheses have been tested within the context of the two negotiation sessions in which goals were assigned. In other words, the dependent measures from the second and the third negotiation sessions (corresponding to the clients, AmTech and Consol, respectively) have been analyzed in order to test the hypotheses.

Performance Levels

The indicators for performance that were chosen include ROUNDS (the total number of counteroffers made by the subject in response to the offers made by the computer), LAST OFFER (the price at which

settlement was reached), and TOTAL TIME (the total amount of time spent by the subject in considering the counteroffers).

Table 5.2 lists summarized results for the performance measures (for both negotiation sessions) for the ANCOVA model of the following form:

$$\text{Dependent measure} = G + S + G \times S,$$

where, G = Externally assigned goal (5-level treatment);

S = Self-efficacy measure (a covariate); and

$G \times S$ = the interaction term.

An examination of the Type III sums of squares of ROUNDS, and LAST OFFER reveal that for both sessions, the interaction term and the main effect of S (self-efficacy) are significant. However, for the dependent variable TOTAL TIME, only the main effect of S was significant for one of the two sessions.

Table 5.2 evidently furnishes strong support for hypothesis 1 which proposes that salespersons higher in self-efficacy will expend more effort than those who are low in self-efficacy.

ROUNDS. For the purpose of illustrating the interactive nature of the effect of self-efficacy on the several dependent variables, the entire sample was divided into four groups corresponding to the lowest through the highest quartile scores on self-efficacy. Appendix F reports some of the relevant statistics associated with the self-efficacy scores of each quartile.

Tables 5.3 and 5.4 report the mean values of ROUNDS for the two negotiation sessions respectively for the different levels of the factor Goal Level crossed with the four self-efficacy blocks.

Table 5.2: Results from Analyses of the First ANCOVA Model for the Performance Measures

<u>Dependent Variable</u>	<u>Source</u>	<u>Type I SS</u>		<u>Type III SS</u>	
		<u>F-Value</u>	<u>Sig. level</u>	<u>F-Value</u>	<u>Sig. level</u>
<u>ROUNDS</u>	Model	9.73	0.0001	-	-
(2nd session)	G	12.14	0.0001	1.29	0.2796
	S	27.37	0.0001	21.14	0.0001
$R^2 = 0.47$	G*S	2.91	0.0253	2.91	0.0253
<u>ROUNDS</u>	Model	7.05	0.0001	-	-
(3rd session)	G	10.33	0.0001	0.97	0.4283
	S	11.79	0.0009	7.08	0.0091
$R^2 = 0.38$	G*S	2.60	0.0405	2.60	0.0405
<u>LAST OFFER</u>	Model	5.96	0.0001	-	-
(2nd session)	G	8.33	0.0001	1.85	0.1261
	S	10.17	0.0019	6.64	0.0114
$R^2 = 0.35$	G*S	2.55	0.0440	2.55	0.0440
<u>LAST OFFER</u>	Model	5.25	0.0001	-	-
(3rd session)	G	5.39	0.0006	2.22	0.0725
	S	11.96	0.0008	6.72	0.0109
$R^2 = 0.32$	G*S	3.42	0.0115	3.42	0.0115
<u>TOTAL TIME</u>	Model	6.40	0.0001	-	-
(2nd session)	G	11.17	0.0001	0.34	0.8536
	S	7.73	0.0065	6.10	0.0152
$R^2 = 0.37$	G*S	1.31	0.2728	1.31	0.2728
<u>TOTAL TIME</u>	Model	4.19	0.0001	-	-
(3rd session)	G	7.88	0.0001	0.31	0.8716
	S	2.58	0.1111	1.79	0.1840
$R^2 = 0.27$	G*S	0.89	0.4726	0.89	0.4726

Table 5.3: Mean Values of ROUNDS for the Negotiation with AmTech
(2nd Session)

		Goal Levels					Row means
		1	2	3	4	5	
Self-Effy. Quar- tiles	Block 1 (Lowest)	7.83	15.00	14.60	18.71	13.29	13.85
	Block 2 (Low)	4.60	15.20	16.33	26.87	25.00	18.29
	Block 3 (High)	6.60	10.50	14.00	38.20	23.75	17.52
	Block 4 (Highest)	18.00	23.14	15.71	41.67	39.60	25.11
Column Means		9.59	16.00	15.26	28.78	24.30	18.75

Table 5.4: Mean Values of ROUNDS for the Negotiation with Consol
(3rd Session)

		Goal Levels					Row means
		1	2	3	4	5	
Self-Effy. Quar- tiles	Block 1 (Lowest)	8.50	12.50	13.40	18.43	12.86	13.41
	Block 2 (Low)	5.20	11.80	16.33	20.75	31.50	16.96
	Block 3 (High)	4.80	11.25	15.00	38.20	35.00	19.26
	Block 4 (Highest)	14.17	12.57	14.57	39.33	40.80	21.32
Column Means		8.45	11.91	14.87	26.26	28.00	17.76

Examination of the mean values of ROUNDS in Tables 5.3 and 5.4 clearly reveal that those subjects who are high in self-efficacy tend to make more counteroffers. Also, in Table 5.3, the goal level 4 corresponds to the highest performance of subjects with regard to the number of counteroffers made, and the same pattern of results is evident for each of the four self-efficacy blocks. In Table 5.4, the goal level 5 corresponds to the highest value. However, the mean number of rounds for goal level 5 is only slightly higher than that for goal level 4. Additionally, for the self-efficacy blocks 1 and 3, goal level 4 corresponds to the highest values of the number of rounds of counteroffers.

In accordance with hypothesis 2, blocks corresponding to higher self-efficacy scores clearly exhibit greater increases in ROUNDS as the level of goal difficulty increases (i.e, as the goal level rises from 1 through 5).

LAST OFFER and TOTAL TIME. Tables 5.5 and 5.6 report the mean values of LAST OFFER from the two relevant negotiation sessions for the five levels of the factor goal level crossed with the four levels of the blocking factor generated from the self-efficacy scores; while Tables 5.7 and 5.8 list mean values for the dependent measure TOTAL TIME for the two negotiations.

The dependent measure LAST OFFER exhibits the same general pattern of results as ROUNDS. As before, the goal level 4 generated the highest performance from the subjects in both negotiation sessions, for each self-efficacy block as well as the entire sample (Tables 5.5 and 5.6).

Table 5.5: Mean Values of LAST OFFER for the Negotiation with AmTech
(2nd Session)

		Goal Levels					Row means
		1	2	3	4	5	
Self-Effy. Quar- tiles	Block 1 (Lowest)	19592	19750	21960	26923	17630	21434
	Block 2 (Low)	21270	21650	22133	34265	24000	25626
	Block 3 (High)	23170	21761	19940	34580	19450	23716
	Block 4 (Highest)	19217	22001	23628	36033	38590	26277
Column Means		20684	21629	22074	32330	24508	24294

Table 5.6: Mean Values of LAST OFFER for the Negotiation with Consol
(3rd Session)

		Goal Levels					Row means
		1	2	3	4	5	
Self-Effy. Quar- tiles	Block 1 (Lowest)	21746	21713	22860	29204	17084	22675
	Block 2 (Low)	24150	24682	24233	29523	26625	26152
	Block 3 (High)	22708	24828	25400	41020	29125	28176
	Block 4 (Highest)	21868	21786	25344	43667	41598	28575
Column Means		22544	23544	24526	33770	27529	26412

Table 5.7: Mean Values of TOTAL TIME for the Negotiation with AmTech
(2nd Session)

		Goal Levels					Row means
		1	2	3	4	5	
Self-Effy. Quar-tiles	Block 1 (Lowest)	92.35	123.30	134.80	200.69	146.94	144.75
	Block 2 (Low)	35.82	190.24	130.43	313.91	239.86	192.27
	Block 3 (High)	63.64	115.33	99.70	295.14	195.75	148.07
	Block 4 (Highest)	116.45	213.25	127.42	344.80	300.72	200.76
Column Means		79.55	164.23	123.78	279.40	213.73	171.92

Table 5.8: Mean Values of TOTAL TIME for the Negotiation with Consol
(3rd Session)

		Goal Levels					Row means
		1	2	3	4	5	
Self-Effy. Quar-tiles	Block 1 (Lowest)	79.68	127.07	108.16	172.45	120.25	123.03
	Block 2 (Low)	39.74	89.91	124.18	245.19	199.14	148.26
	Block 3 (High)	41.28	114.09	92.90	261.79	250.53	144.25
	Block 4 (Highest)	89.86	115.30	101.16	242.39	248.84	143.77
Column Means		64.65	110.16	106.89	226.30	194.23	139.94

The pattern of results for the dependent variable TOTAL TIME, however, is weaker. Firstly, the goal level x self-efficacy interaction for the two negotiation sessions were not significant at the 0.05 level (Table 5.2). Also, the mean value of total time does not increase progressively as the goal level is increased from 1 through 4. The order of goal levels that generated the highest through the lowest levels of the dependent variable TOTAL TIME (for both sessions) is 4, 5, 2, 3, 1 (Tables 5.7 and 5.8).

All the preceding dependent variables provide some evidence in support of hypothesis 3 which posits inverted-U shaped curvilinear relationships between goal level and measures of performance, with performance peaking at intermediate goal levels. Further analyses and comments pertaining to this issue are reported at the end of this chapter.

For the purpose of further analyzing the effects of G and S on the performance measures, the dependent measures from the previous ANCOVA analyses were analyzed in the context of a second model of the following form:

$$\text{Dependent variable} = G \ S(G);$$

where the symbols representing the independent variables have the same meanings as in the preceding analyses.

The parameter estimates from this model provide information about whether or not the slope of the relationship between self-efficacy and the dependent variable is significantly different from zero within each level of goal. Table 5.9 reports the relevant parameter estimates. The results indicate that for lower goal levels, the relationship between performance and self-efficacy is not significantly different from zero.

For higher goal levels, however, higher levels of self-efficacy contribute to improved performance. This is consistent with the proposition of the first hypothesis.

Table 5.9: Effect of Self-Efficacy on Performance Measures Within Each Goal Level - Parameter Estimates from the Second ANCOVA Model

Parameter	<u>ROUNDS</u>		<u>LAST OFFER</u>		<u>TOTAL TIME</u>	
	<u>Session</u>		<u>Session</u>		<u>Session</u>	
	2nd	3rd	2nd	3rd	2nd	3rd
S (G 1)	3.7	1.72	29.17	-468.51	11.08	3.47
S (G 2)	4.08	-0.42	772.70	-810.47	30.37	12.50
S (G 3)	-0.11	-0.31	152.83	828.89	-6.31	-12.93
S (G 4)	8.85**	7.49*	3578.53*	5429.00*	59.03*	33.36
S (G 5)	8.99**	9.56**	6276.08**	7926.16**	51.66*	44.29*

Note: The parameters S (G 1), S (G 2), etc., refer to self-efficacy within goal level 1, self-efficacy within goal level 2, etc., respectively.

* - Significant at the 0.05 level;

** - Significant at the 0.0005 level.

Expectancy of Task Success

Hypothesis 4 proposes that within a given level of goal difficulty, expectancy of task success will be positively correlated with self-efficacy. That is, subjects with higher self-efficacies will report higher expectancies for the same level of goal difficulty.

To test this hypothesis, a GLM analysis with Expectancy as the dependent variable and Self-Efficacy as the independent variable was done separately for each goal level. The results are summarized in Table 5.10.

Table 5.10: Effect of Self-Efficacy on Expectancy Within Goal Levels

Goal Level	AmTech (2nd Negotiation)		Consol (3rd Negotiation)	
	F-Value	Sig. level	F-Value	Sig. level
1	4.17	0.05	14.28	0.001
2	1.14	0.30	3.11	0.09
3	5.20	0.03	4.19	0.05
4	2.50	0.13	7.46	0.01
5	4.93	0.04	5.60	0.03

Analyses of the ANCOVA model: Expectancy = $G \ S(G)$ also confirmed the above results, viz., in seven out of the ten cases, the slope of the relationship between self-efficacy and expectancy was significantly positive. Thus there seems to be a moderate level of support for the proposition that higher self-efficacies contribute to higher expectancies within goal levels. The fact that the expectancy measures from the third session provide stronger support for this hypothesis may be an indication of the possibility that subjects' estimates of the probability of task success improve or stabilize (i.e., have lower error variances) as the subjects become more and more familiar with the task situation.

Hypothesis 5 suggests that external information regarding the probability of task success (i.e., estimates of probability of task success provided by the experimenter) should also affect the subjects' expectancies. The within subjects factor, EXTINFO, involves informing the subjects that one the two clients (of the second and third sessions) was a hard negotiator, while the other was easy. In actuality, the same task was repeated for the two sessions. Hence, a difference between for the expectancies for the second and the third negotiations sessions should confirm this hypothesis.

The ORDER manipulation, however, involved informing half the subjects that AmTech (2nd client) was the easy negotiator and that Consol (3rd client) was the difficult one; while the remaining half was informed that AmTech was hard and that Consol was easy. Thus, if EXTINFO represents the within subjects factor (repeated measures of expectancy for the 2nd and the 3rd task, or EXPEC2 and EXPEC3 respectively), then the repeated measures GLM model: $EXPEC2 \text{ } EXPEC3 = ORDER \text{ (Repeated = EXTINFO)}$ is the appropriate model for the analyses.

Expectedly, the main effect for EXTINFO (in the corresponding MANOVA tests) was not significant. Also, the EXTINFO x ORDER effect was significant at the 0.0001 level. The analysis of the contrast effect between EXPEC2 and EXPEC3 also confirmed the preceding result.

Another way of approaching the aforementioned analysis is by looking for a main effect of EXTINFO when the repeated measures GLM model is run within each of the two levels of ORDER. Once again,

EXTINFO had a significant effect on the expectancy measures within each level of ORDER.

The next analysis incorporated a somewhat more involved model with self-efficacy, goal level, and their interaction as independent variables (and EXTINFO as the within subjects independent variable) and was done separately for each level of ORDER. It was found that the EXTINFO \times SELF-EFFICACY interaction was significant. Although this effect had not been hypothesized in the context of the experimental study, this finding is consistent with the conceptual model discussed in Chapter 3. Additionally, this result has intuitive appeal--those who are low in self-efficacy are likely to revise their expectancies downward to a greater extent (than those who are high in self-efficacy), when cautioned about the high level of difficulty of an impending task.

In sum, the results of the analyses provided strong support for hypothesis 5.

Intention to Perform and Intrinsic Rewards

In general, hypothesis 6, 7, and 8 received partial support from the results of the analyses of data. Expectancy of task success was found to be significantly related to the indicators of performance, mostly for goal levels 4 and 5. For lower levels of goals, the parameter estimates of expectancy within goal levels did not approach significance. Also, the 'Expectancy-Intention to Perform' relationships within goal levels approached significance in about half of the cases, while being actually significant at the 0.05 level in the other half.

The preceding conclusions were obtained from models of the form:

Dependent variable = Expectancy (Goal level).

With goal level as an additional independent variable in the preceding model, the significance of the parameter estimates are considerably weakened. A possible reason for that occurrence is the strong multicollinearity between goal level and expectancy.

Models with INTRINSIC (the level of intrinsic interest in the level of the assigned goal) as the dependent variable, and self-efficacy and goal level as independent variables did not even approach significance. Consequently, hypothesis 7 remained unsupported.

When INTRINSIC was used as the independent variable, it performed poorly in predicting the performance measures for the first negotiation session. However, for the second session, two of the three performance measures were predicted significantly, while in the third case the relationship merely approached significance.

In the context of the aforementioned weak results, it was somewhat surprising to observe that INTENT (intention to expend effort) was predicted strongly by INTRINSIC.

One of the commonalities of the results from the three negotiation sessions include the lack of support for predicted relationships between INTENT and the primary independent variables, Goal Level and Self-Efficacy. Similarly, INTRINSIC seemed to exhibit a lack of correlation with the two primary predictors. It is speculated that the measures failed to capture the essence of the constructs they were meant to represent--a possibility that is further explored in the following paragraph.

INTENT was measured by having subjects respond to an item that asked them how hard they would work to realize the assigned goal. It is possible that the subjects (or at least a significantly large number of them) interpreted the question as: Given the level of goal, how hard would you work to realize it? Thus, although task goals of different difficulty levels would require differential amounts of effort, in each case the subjects could indicate "extremely hard" and yet be semantically correct.

Similarly, INTENT was measured on an instrument consisting of three items which essentially asked subjects to indicate the level of enjoyment they would associate with the goal level. As in the case of INTRINSIC, there is the possibility that the subjects considered the questions separately for each goal level and not across different task goals. This speculation finds some justification in that while both INTENT and INTRINSIC are unrelated to the primary independent measures, they correlate very strongly with each other.

The Inverted-U Relationship Between Goal and Effort Expended

It has been mentioned earlier in this chapter that there seems to be some indication that the relationship between goal level and the expenditure of effort is one that is characterized by peak values of effort corresponding to intermediate goal levels. For the purpose of further testing this possibility (as proposed in hypothesis 3), analyses involving contrasts between goal levels 4 and 5 were undertaken. General linear models employing contrast codes for isolating the difference between the dependent variables corresponding to goal levels

4 and 5 were employed for this purpose. It was found that as long as self-efficacy was not included in the models, the contrast was statistically significant (i.e., goal level 4 corresponded to a higher level of the dependent variable than goal level 5) for the dependent measure LAST OFFER for both the negotiation sessions. For the dependent measure TOTAL TIME, this drop approached significance only for the first of the two negotiation sessions (corresponding to the client AmTech); while for the dependent measure ROUNDS, no significant differences were found. With self-efficacy (and the interaction of self-efficacy with the contrast) included in the GLM model as additional independent variables, the drop in effort expenditure was evident only from the significantly higher LAST OFFER for goal level 4 (than the LAST OFFER for goal level 5) corresponding to the first negotiation session. For the second negotiation session, this difference approached significance. The other dependent variables did not yield significant differences.

Thus, the results of the detailed analyses provide only partial support for the second hypothesis.

CHAPTER 6

CONCLUSIONS

This final chapter consists of concluding remarks regarding managerial implications of the observed results, limitations of the study, and directions for future research.

Implications of Observed Results

The conceptual model proposed in Chapter 3 identifies a number of significant interactive effects between externally assigned target performance levels, self-efficacy, and other constructs that affect motivation and performance. The experimental study confirms some of the key propositions of the model.

A significant finding of the experimental study is that although self-efficacy does influence how individuals respond to externally assigned goals, the effect is only marginal at low goal levels or for very easy tasks. It is only when the task begins to increase in difficulty that the effect of self-efficacy is strongly felt. Individuals with higher levels of self-efficacy respond more positively to increased levels of goal difficulty. They also exhibit higher subjective probabilities of task success. Furthermore, although each individual may be thought of as having a certain level of target

performance which corresponds to a maximum level of actual performance, for those that are high in self-efficacy, this peak performance level is higher than that of those who are low in self-efficacy.

Another important finding of this study is that providing individuals with information about the probabilities of their success in the assigned task affects their personal expectancies either positively or negatively, depending upon the nature of the information supplied. That is, if a sales manager chooses to inform a salesperson that a given task will be a difficult one, then that information may detract from the salesperson's personal (i.e., independent) expectancy estimate and lower motivation for the task. Similarly, providing positive information (regarding the salesperson's high level of probability of achieving task success) should have a favorable impact on his/her motivation, especially when the task difficulty is actually high. Also, it was observed that individuals who are high in self-efficacy are likely to revise their expectancies upward to a greater extent (than those who are low in self-efficacy) when informed about the high level of probability of his/her achieving success at the given task. This finding thus has obvious implications for the manner in which a given task should be "framed" when it is assigned to an individual salesperson.

Included among the limitations of the study is the lack of definitive support for two important propositions suggested by the theoretical framework. First, the results of the data analyses failed to clearly identify "peak" effort levels of the subjects. In almost all cases, the mean effort levels of the subjects are highest corresponding to the fourth goal level. However, the drop in effort expended when the

externally assigned goal is raised to the fifth level is not statistically significant in several cases. The data as it exists suggest that the the values of effort expended level out (i.e., reach a plateau) at higher goal levels. In view of the evidence from prior studies, it seems likely that even higher levels of externally assigned goals than what was incorporated for this study could have resulted in significantly lower performance levels. Thus, in all probability, the problem lies with the calibration of the levels of the factor externally assigned goal level. Secondly, the results seem to indicate that the effort expended by most subjects reach a maximum corresponding to the fourth goal level. It would have been possible to make a stronger statement about the impact of self-efficacy if individuals who were higher in self-efficacy seemed to expend peak levels of effort corresponding to higher levels of externally assigned goals than those who were low in self-efficacy. Since self-efficacy was measured (rather than manipulated) in this study, it is possible that the factor may not have had the benefit of as much variation as is required for purpose of producing such effects.

Finally, from a theoretical standpoint, the experimental study did not include the examination of the dynamic aspects of goal setting.

Future Research Directions

The experimental study described in Chapter 4 addressed some significant aspects of the static issues related to goal setting (i.e., issues which do not take into account the effects of feedback and repetition). Although the static aspects of goal setting have substan-

tial value in the context of proving a theoretical base for future research, some of the more interesting problem situations in sales management involve the dynamic aspects of goal setting, in which feedback and repetitive performance goals are the norm, and where self-efficacies are more than likely to change over time.

Future studies that explore the dynamic nature of self-efficacy and subsequent effects on motivation and performance would represent important contributions. In such contexts, experimental studies involving attempts at manipulating self-efficacies as opposed to measuring them, would constitute the preferred methodological format.

An important property of the self-efficacy measure is that it is domain specific. Consequently, the necessity of a survey-based field study for the purpose of developing and validating a self-efficacy instrument applicable in an organizational setting cannot be over-emphasized. Although it would be relatively more difficult to administer, longitudinal studies that track the assigned tasks, the development of an individual salesperson's self-efficacy, intrinsic motivation, and performance over an extended period of time would contribute invaluable information in the domain of knowledge pertaining to motivation in the sales force. Validation of the propositions arising out of goal theory and self-efficacy studies within the context of several different actual sales tasks would constitute one of the major objectives of the future research directions indicated by this dissertation.

The theoretical framework developed in this dissertation focuses specifically on sales related tasks and the performance goals discussed

in the context of the framework refer exclusively to the sales situation. However, a number of marketing functions and activities are characterized by goals and motivated performance of individual task performers is an important issue in a majority of those areas. The basic tenets of goal theory could therefore be valuable in the exploration of the determinants of efficiency in a wide variety of areas related to marketing. Also, while this study has specifically focussed on the impact of externally assigned goals on performance at the individual level, it is conceivable that performance goals assigned at the group level (such as, those assigned for departments, organizations, etc.) influence overall performance as well.

APPENDIX A

ITEMS IN THE SELF-EFFICACY SCALE

1. I am good at negotiating tasks.
2. It is easy for me to get others to agree to my terms or see my point of view.
3. I find it difficult to convince someone else, when that person's point of view conflicts with mine.*
4. In any negotiation situation, I find it relatively easy to refuse an offer that I do not like.
5. I find it very difficult to refuse an offer if the person I am negotiating with is very persistent.*
6. It is easy for someone to take advantage of me when he (or she) is bargaining with me.*
7. In most bargaining situations I am likely to come out as the "winner" when the deal is concluded.
8. I can put pressure on someone I am bargaining with to get him or her closer to my terms.
9. I do not possess the skills that are required to be a good negotiator.*
10. A person has to be a really good negotiator to persuade me to accept his or her terms (or point of view) that I started out disagreeing with.
11. My friends consider me to be a good negotiator.
12. I cannot bring myself to apply pressure on another person in order to get a better deal for myself in a bargaining situation.*
13. Because I am not a good bargainer, I am likely to do poorly in situations involving bargaining.*
14. If a situation calls for negotiating, my friends would consider me to be the right person to deal with it.

15. I usually come out better off in situations in which I have the opportunity to negotiate terms.
16. My closest friends do not consider me to be a good negotiator.*
17. I find it difficult to continue bargaining for long over any issue.*
18. I do not give up easily in the course of negotiation until the conditions and terms that I am looking for have been met.
19. In the course of a negotiation, I am good at "reading" an opponent with regard to what terms he or she is actually interested in.
20. I can easily conceal my own minimum acceptable terms and make offers and bids that will give me a substantially greater advantage.

Note: Items marked with asterisks are reversed.

APPENDIX B

ITEMS IN ROSENBERG'S SELF-ESTEEM SCALE

1. I feel that I am a person of worth, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.*
4. I am able to do things as well as most other people.
5. I feel that I do not have much to be proud of.*
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.*
9. I certainly feel useless at times.*
10. At times I think I am no good at all.*

Note: Items marked with asterisks are reversed.

APPENDIX C

INTERCORRELATIONS OF SOC SCALES WITH OTHER SCALES

Scale	1	2	3	4	5	6
1. Personal Efficacy (E-I)	(.75)	.31	.12	.04	-.37	.19
2. Interpersonal Control (E-I)		(.77)	.07	.35	-.28	.11
3. Sociopolitical Control (E-I)			(.81)	-.24	-.50	-.03
4. Machiavellianism				(.68)	.35	-.19
5. Rotter's Locus of Control (I-E)					(.70)	-.32
6. Marlowe-Crowne						(.75)

Note: 1) The reported reliabilities appear in parentheses.

2) E-I refers to a scale orientation that measures the internality of perceived control; whereas I-E refers to a scale orientation that measures the externality of perceived control.

3) n=110.

APPENDIX D

INSTRUMENTS USED FOR INTERVENING MEASURES

The following sections illustrates how the intervening measures were collected in the course of the study. Although the specific examples listed here pertain to the negotiation task with AmTech only, the intervening measures collected for the other negotiation sessions were done in a very similar fashion. The exact questions and items that were presented to the subjects in the context of the interactive negotiation task on the computer are reproduced in the following sections.

Subjective Difficulty of Goal (for the quota assigned jointly for AmTech & Consol): This variable was measured by the following single item.

Choose any number (between 1 and 7) that corresponds to your impression of the level of difficulty of the quotas that were assigned to you in the context of negotiating with AmTech and Consol:

1. Extremely easy
2. Fairly easy
3. Somewhat easy
4. Neither easy nor difficult
5. Somewhat difficult
6. Fairly difficult
7. Extremely difficult

Expectancy of Task Success (for the negotiation session with AmTech): This variable was measured by the following single item.

How do you rate the probability of your being able to achieve the quota that has been assigned to you with respect to your negotiations with AMTECH? Please type a whole number from 0 through 100.

Likelihood of Task Success (for the negotiation session with

AmTech): This variable was measured by the following single item.

Choose any number (from 1 through 7) that corresponds to your estimate of how LIKELY you think it is that you will be able to achieve the sales quota that was assigned to you in the context of negotiation with AMTECH.

1. NOT likely to achieve quota at all
2. Extremely UNlikely to achieve quota
3. Somewhat UNlikely to achieve quota
4. Equally likely to achieve quota and not achieve quota
5. Somewhat likely to achieve quota
6. Extremely likely to achieve quota
7. Certain of achieving quota

Confidence Rating (associated with the expectancy and likelihood

estimates for the negotiation task with AmTech): This was measured by the following single item.

Please indicate how CONFIDENT you were of your two preceding estimates of how well you are likely to do in the context of negotiating with AMTECH. That is we wish to know to what extent you were sure or unsure of the probability and likelihood estimates that you made just now.

1. I was not confident in making the decisions at all
2. I was very much lacking in confidence in making the estimates
3. I was somewhat lacking in confidence in making the estimates
4. I neither lacked nor possessed confidence in making the estimates
5. I was somewhat confident about my estimates
6. I was very confident about my estimates
7. I was totally confident about my estimates

Intrinsic Interest (corresponding to the assigned quota for the

negotiation task with AmTech): This was measured using a 7-point Likert format scale anchored by the extremities "Strongly AGREE" (corresponding to the point 1 on the scale) and "Strongly DISAGREE" (corresponding to the point 7) and consisting of the following three items.

Please indicate your level of agreement with the following statements:

1. "I think I will have a great deal of fun in trying to achieve the quota that was assigned to me for my negotiations with AmTech."
2. "I think that trying to achieve the quota for AmTech will be a very boring task." *
3. "I feel challenged and motivated by the quota that was assigned to me for negotiations with AmTech."

* The item marked with an asterisk was reversed before the scale score was computed.

Intention to Expend Effort (corresponding to the assigned quota for the negotiation task with AmTech): This was measured using a 7-point Likert format scale anchored by the extremities "Strongly AGREE" (corresponding to the point 1 on the scale) and "Strongly DISAGREE" (corresponding to the point 7) and consisting of the following item.

"I intend to work very hard in order to realize the quota that was assigned to me in the context of the negotiation with AMTECH."

The intervening variables in the context of the negotiation task with CONSOL were measured similarly.

APPENDIX E

ALGORITHM USED FOR COMPUTING CLIENT'S OFFERS IN NEGOTIATIONS

Stage 1

The computer program makes an initial offer on behalf of Banner (set at \$15,000).

Subject (types in response and/or) makes counteroffer.

- 1(a) If the subject's offer is greater than a preset, maximum initial offer limit (set at \$64,000 for Banner), then the program transmits a message¹ (from bank 7 of Banner's message file) which will alert the subject of the possibility of having entered an unusually large dollar amount, either on account of a typographical error or otherwise. The subject is requested to reconsider and submit a new counteroffer.
- 1(b) If the subject makes a counteroffer that is less than Banner's initial offer, the computer program warns the subject of a possible typographical error, and offers him/her the option of changing it.
- 1(c) If the subject makes a counteroffer that is less than or equal to Banner's initial offer plus a certain set amount, known as tolerance (set at 0.06 x Banner's initial offer), then the

¹Refer to Appendix G for a sample of the messages used by the program to convey the client's responses to the subject.

program issues an acceptance message (from bank 2) and returns the control of the terminal to the sales manager.

- 1(d) If the subject makes a counteroffer in the working range, (i.e., if the counteroffer is less than the maximum initial offer limit, but greater than Banner's previous offer plus tolerance), then the program issues a message from bank 4. Messages in this bank inform the subject of the client's inability to accept the counteroffer. Also, a new offer is made to the subject according to the formula:

$$\text{New offer} = \text{Banner's previous offer} + \{(\text{Subject's offer} - \text{Banner's offer}) * \text{Concession slope}\}$$

For Banner, the the concession slope is set at 0.007.

Stage 2

This second stage is reached only if the subject makes an initial counteroffer in the working range. In that case, the computer program provides the first revised offer on behalf of Banner in response to the subject's counteroffer. The program will then prompt the subject for a new counteroffer.

- 2(a) If the subject's first revised counteroffer is greater than his/her previous counteroffer, Banner issues a message (from bank 5) that requests the subject not to move in the wrong direction in the context of the negotiations. The subject is requested to reconsider Banner's previous (revised) offer.
- 2(b) If the subject's first revised counteroffer is exactly equal to his/her previous counteroffer, Banner's message informs the subject that the negotiations may proceed only if some concessions are made. The subject is requested to reconsider Banner's previous (revised) offer. A message from bank 6 is transmitted.

- 2(c) If the subject's first revised counteroffer is less than Banner's first revised offer, a warning message regarding a possible typographical error is issued and the subject is given an option to correct the entry.
- 2(d) If the subject's first revised counteroffer is less than or equal to Banner's first revised offer plus tolerance, the counteroffer is accepted, and the acceptance message from bank 2 is issued.
- 2(e) If the subject's first revised counteroffer is not sufficiently less than his/her previous counteroffer, then Banner issues a message indicating the client's disapproval of the insignificance of the concession made (and a message from bank 8 is issued). In mathematical terms, this condition arises if the first revised counteroffer is greater than the previous offer minus an intolerance amount. The intolerance amount = $\text{previous offer} * \text{intolerance factor}$. Or, the condition is: $\text{Subject's counteroffer} > (\text{previous counteroffer} - \text{previous counteroffer} * \text{intolerance factor})$. For Banner, the intolerance factor was set at 0.005.
- 2(f) The remaining possibility involves a counteroffer made in the working range which is now defined as greater than Banner's previous offer plus tolerance, but less than or equal to the subject's prior counteroffer minus the intolerance amount. In this case, a second revised offer is made by Banner, using the same formula used earlier in Step 1(d) and a fresh message from bank 4 is issued.

Stage 2 as described in the preceding section is sufficiently general to represent the following stages. That is, for subsequent counteroffers, the conditional responses described in Stage 2 may be reiterated until the program terminates. The subject is informed beforehand that he/she may indicate an acceptance of Banner's offer

at any time by typing an amount exactly equal to Banner's offer for the corresponding counteroffer.

The algorithms used for the the negotiations with AmTech and Consol were very similar. The differences include the use of entirely different message modules (or message files) for each client. These modules differ from one another with respect to the language and sentence structures used but having similar meanings in terms of the implications of the messages for the corresponding message banks within modules.

The different adjustable parameters, such as client's (i.e. the computer program's) initial offer, concession slope, etc., were changed from the settings used for Banner, but were kept identical for the two subsequent negotiations.

APPENDIX F
STATISTICS ASSOCIATED WITH SELF-EFFICACY SCORES

<u>Part of the Sample</u>	<u>No. of Obs.</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Mean</u>	<u>Std. Dev.</u>
Entire Sample	112	1.87	6.85	4.79	0.97
1st quartile (Lowest)	28	1.87	4.15	3.47	0.56
2nd quartile (Low)	28	4.20	4.90	4.58	0.22
3rd quartile (High)	27	4.95	5.45	5.18	0.17
4th quartile (Highest)	29	5.50	6.85	5.91	0.38

APPENDIX G

MESSAGES USED BY THE COMPUTER PROGRAM

A typical client was equipped with a number of messages for the purpose of communicating his/her own evaluation and responses to the subject. That is, the text file accessed by the computer program (to determine how a particular client should respond in a given situation) contained a variety of messages to suit the different actions that the program considered appropriate as responses to the subject's actions. The several different response situations may be categorized into a total of eight classes, where each of these situations actually represent a possible scenario that may result from the subject's choice of response. In other words, a client could be expected to confront a maximum of eight different situations which would require altogether different kinds of messages. Message banks corresponding to each of the eight different kinds of response situations were compiled so that each bank contained at least one message that could deal with the situation. For instance, if the subject chose to accept the first offer made by the client, then a message from Bank number 1 was issued. This message essentially thanks the subject for complying with the initial offer and bids farewell. Because a given subject can confront this message only once, this bank contains a single message. Other banks contain more messages depending upon the how frequently the situation associated with that bank may arise. The following section contains samples of the different kinds of messages that were made available to the computer program for the purpose of issuing on behalf of one client.

- BANK 1: Msg 1: We are glad that you found our offer acceptable. It was nice working with you. We are looking forward to working with you in the future.
-
- BANK 2: Msg 2: Thank you. We will accept your offer. It was nice working with you. 'Bye!
-
- BANK 3: Msg 3: The amount you have quoted is greater than what we can pay. Please consider our offer of
- Msg 4: It is unfortunate, but we cannot quote beyond a certain limit set by our company policies. We have made an offer as high as we possibly can. We hope will find our next offer of acceptable. Our offer is . . .
- Msg 5: As we have indicated before, there is no more room for us to quote any higher. It is quite impossible for us to make an offer higher than what we have already made. Once again, we are offering . . .
-
- BANK 4: Msg 6: We are sorry, but we are unable to accept your offer. Please let us make you a new offer of . . .
- Msg 7: Unfortunately, the amount you have quoted is still unacceptable. Please consider our new offer of . . .
- Msg 8: Sorry, we have to refuse your offer again. Your quotation is too high in comparison to what we can pay. We are prepared to increase our offer to . . .
- Msg 9: Thanks very much, for making this concession. We are still unable to evaluate your offer as acceptable. Do you think it will be possible for you to accept our offer of . . .
- Msg 10: We are sorry but we simply cannot offer you that amount. Please consider our offer of . . .
-
- BANK 5: Msg 11: You have previously quoted us an amount that is lower than your last quoted amount. Please do not move away from a settlement.
- Msg 12: Once again, your preceding quote is HIGHER than a previously quoted price for your product. We are requesting you NOT to move in a direction that can jeopardize an agreement!

- Msg 13: If you feel that you must reevaluate the standards on which we have discussed prices so far, we will have lost the advantages from the progress we have made thus far. Please quote us an amount that is lower than your lowest quote till now.
- Msg 14: WE ARE SERIOUS! If you think you cannot proceed with these negotiations so that we may gradually converge on a settlement, we will be wasting our time. We insist that you quote lower than your lowest quoted amount thus far.
- Msg 15: Please quote an appropriate amount. If your quotation is higher than your lowest quoted amount till now, we will have no way of responding. We don't wish to have our negotiations deadlocked at this stage. Please quote an amount that is lower than your lowest quoted amount thus far.
- Msg 16: You MUST make a quotation that reflects a reduced price from your previous reasonable quote for us to be able to consider you at all.
-

- BANK 6: Msg 17: Our continued negotiations are based on the understanding that both parties will make concessions in order to reach an agreement. If, we are to make any headway, you are requested to respond to our offers with counter-offers that reflect reasonable concessions.
- Msg 18: I realize that you do place a great deal of importance on the amount you have quoted. However, the only way we can make progress is if we can find ways to concede. We cannot accept your offer or make a counteroffer if you do not concede.
- Msg 19: Please realize that we are very serious about this: we CANNOT make any counteroffer whatsoever, unless you make some concession.
- Msg 20: We will be wasting your time and mine if if and when you refuse to make a concession. PLEASE make us an offer that is lower than this.
- Msg 21: We do have to tell you again that there is NO WAY that we can make you a new offer UNLESS you lower your prices by some amount when you make a new quote. Our system does not allow us to even review your new quote if it is not lower than your previous quote.
- Msg 22: Let us tell you in case you are overtly worried about your performance: We have negotiated with agents from IMC before. You won't be singled out

for bad performance if you DO make the sale.
Please provide us with some concession. Else, both
you and I will have wasted our time.

Msg 23: If you cannot concede, we will really fail to make
any more progress than what we have accomplished
thus far. Please believe me when I say that I
cannot get an approval for submitting a quotation
unless you lower your offer.

Msg 24: We are serious about this! We cannot make a
counteroffer unless your offer reflects a
concession.

BANK 7: Msg 25: You have quoted an unusually high amount. Please
check for an error in typing and re-submit your
quote.

Msg 26: Are you serious about the amount you have quoted?
We don't know of anybody who would seriously make
or even consider an offer as high as that. Please
make us a sensible offer.

Msg 27: You have quoted an impossible amount! Please check
and resubmit your quote. You have to REALLY lower
your offer before we can even begin to evaluate
it.

Msg 28: The amount you have quoted is prohibitively high!
There is no way for us to evaluate an amount as
high as that. We must ask you to lower your quote
substantially for us to be able to respond.

Msg 29: Please make a quotation that is not so high that we
cannot even begin to evaluate it. You must lower
your quote significantly for us to be able to
continue negotiating.

BANK 8: Msg 30: We would really appreciate your concession if it
was somewhat more generous than that.

Msg 31: It is not that we do not appreciate your making
this concession, . . . However, we believe that we
could spend our time more efficiently if our offers
and counteroffers reflect SIGNIFICANT concessions.

Msg 32: We find your concession to be too little. I am
sure that it is within your capabilities to let
this negotiation proceed at a quicker pace. We are
hopeful that you will now make us an offer that
reflects a genuine concession.

- Msg 33: Thank you for conceding. But please realize that this offer that you have made is so close to your previous offers that it will not be worth our time to evaluate it separately. Please make an offer that amounts to a more generous concession.
- Msg 34: If you are serious about continuing negotiations with us, please lower your selling price by a reasonable amount.
- Msg 35: Please take this opportunity to make a realistic concession. We really cannot continue to waste your time and ours anymore.
-

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BIOGRAPHICAL SKETCH

Jhinuk Chowdhury was born in Calcutta, India, on February 13, 1956. After completing high school education, he was admitted to the bachelor's degree program in mechanical engineering at Jadavpur University in Calcutta. After earning the bachelor's degree, he worked as an engineering superintendent in a manufacturing plant owned by Union Carbide India Limited in Calcutta.

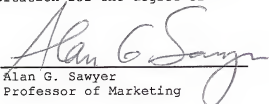
In 1984, he enrolled in the doctoral program in marketing at the College of Business Administration of the University of Florida in Gainesville, Florida. In the August 1989, he received and subsequently accepted an offer to join the faculty of the College of Business Administration of the University of North Texas in Denton, Texas, as an Assistant Professor.

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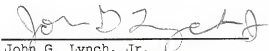
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